

REPORT

ON THE

COTTON DEPARTMENT

FOR THE YEAR 1867-68.

BY

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UPON COMMISSIONER FOR THE CENTRAL PROVINCES AND THE PRINCIPAL,



Bombay:

REPRINTED AT THE

EDUCATION SOCIETY'S PRESS, BYCULLA.

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APPENDIX A.

APPENDIX B.

APPENDIX C.

No. 1897.

From H. RIVETT-CARNAC, Esq.,

Cotton Commissioner, for the Central Provinces and the Berars.

To THE FIRST ASSISTANT TO THE RESIDENT

AT HYDERABAD.

Dated Camp, Khangaon, 28th June 1868.

SIR,—I have the honour to submit, for the information of the Resident at Hyderabad, a report on the operations of this department, during the year 1867-68.

2. The Land Revenue Settlement of the portions of the Nagpore and Wurdah Districts under my charge was

Appointment as Cotton Commissioner. concluded, and the final report of that Settlement was submitted on the 1st of September 1866. On the same date Captain Lucie Smith

relieved me of the Land Revenue Settlement of the Chandah District, which also was under my direction, and I then joined the appointment of Cotton Commissioner for the Central Provinces and the Berars. This office has been held by me during the whole of the year under report.

3. The year 1866 had thus nearly drawn to a close before I left the Settlement Department, and as, at first, I was employed more in trying to acquire a general idea of what were to me entirely new duties, and in ascertaining the measures that had been successfully adop'ted

Period to which this report refers. in other parts of India for improving the cotton cultivation, rather than in attempting to initiate any schemes of my own in Central India, I had but little progress to report for the year 1866.

In July 1867 a Memorandum was submitted showing the result of

the work during the early part of that year. The report now submitted refers chiefly to the operations of the year 1867, including portions of the seasons 1866-67, and 1867-68, the results of which may with advantage be compared. So far as has been possible the Returns of Cotton Exports and other information of interest has been brought up to date, and this, I hope, may in some degree atone for the delay in submitting this report, which has had to be prepared

Cause of delay in the submission of the report.

at what, to the Cotton Commissioner, is about the very busiest time of the year, and at a season when it is desirable that he should spend more of the day in the saddle than at the desk.

4. As it appears for many reasons convenient that this letter should not be burdened with matter which does not call for the immediate notice of Government, and that, at the same time, those who are interested in the cotton trade of these Provinces should be spared the labour of wading through the official details of which this report

Report of Cotton Commissioner's operations kept separate from Memorandum on cotton trade.

must necessarily be composed, such general information as I have been able to collect regarding the cultivation of cotton in Central India, and the many stages through which it passes before reaching Bombay, has been embodied in a separate Memorandum, which, as by degrees it is amended and enlarged, may perhaps, in time, develope into a sort of Cotton Hand-book for these Provinces. I hope that this arrangement may meet with the Resident's approval.

5. It will be convenient to commence by showing the area under cotton cultivation during the past season, as compared with the acreage sown in former years, and to allude to the effect on the crop of the very severe and exceptional monsoon which caused more or less damage to all the cotton fields of Central and Western India during the autumn of 1867, and the early months of 1868.

The total acreage sown with cotton in the Central Provinces during the year under report, was 552,520 acres.

Area under cotton cultivation in the Central Provinces and the Berars during the season 1867-68.

The area occupied by this crop in the Berars during the same period amounted to 1,254,662 acres. When it is remembered that the total of the cotton cultivation throughout the whole of India does not exceed 8½ million acres, it will be seen how fair a part is played by the Central Provinces and the Berars in the production of this great staple. Moreover, as our

annual exports on an average year reach 250,000 bales,* and as the total exports from India may be taken at 1,500,000 bales, these Provinces may be considered to bear a fair share in supplying the European markets with cotton.

6. The figures of the annexed Statement (A) give in detail the area under cotton cultivation in each district

Area sown with cotton in 1867-68, contrasted with acreage of previous year.

of the Central Provinces during the official years 1866-67 and 1867-68, and show that during the season under report this class of cultivation fell from 598,801 acres, the total of 1866-67, to 552,520 acres in 1867-68. The decrease will be observed in the Wurdah and Chandah districts and in the Nerbudda valley. In Chutteesgurl and in Sumbulpore an increase is shown; but this, I believe, is more to be attributed to improved statistics, owing to the advance of the Land Revenue Settlement operations, than to any real extension of cultivation.

The causes of this decrease will be alluded to in more detail hereafter, but it may be noticed here that the falling off was owing to the unfavourable state of the weather, and to the deluge of rain, which,

Causes of decrease in the cultivation in the Central Provinces, in 1867-68.

destroying the cotton plant, obliged the land-holders to plough up their fields, and later in the season to try their chance with another crop, and cannot fairly be debited to the state of the cotton market, or to any feeling of distrust of the cultivation in the trade at the time that the sowings commenced.

7. To show at a glance the districts, which, in proportion to their size and capabilities, contribute most largely to swell the cotton

* The bale mentioned throughout this report is the Bombay cotton bale of half a candy or 3½ ewt. or 394 lbs. cotton net. The tare in such a bale, which is always full-pressed, varies from 16 lbs. to 38 lbs., the weight depending much on whether the bale is bound with ropes or iron bands. The quantity of cotton packed in the bales of other parts of India and foreign countries varies much, and in comparing the quantities of cotton supplied by different countries, this point must not be lost sight of, thus—

Weight of Bombay bale ..	394	lbs. net cotton.
" " Madras ..	300	" "
" " Bengal ..	300	" "
" " China ..	240	" "
" " America ..	440	" "
" " Brazil ..	180	" "
" " Egypt ..	500	" "
" " Turkey ..	350	" "

A.

STATEMENT showing the Area under Cotton cultivation in the Central Provinces during 1867-68, as compared with 1866-67.

Divisions.	Districts.	1866-67 Acres.	1867-68 Acres.	Increase.	Decrease.	
NAGPORE.....	Nagpore	47,079	48,350	1,271	..	
	Bhundara	30	35	5	..	
	Chandah	50,679	35,000	..	15,679	
	Wurdah	190,223	158,046	..	41,177	
	Total..	297,011	241,431	1,276	56,856	
JUBBULPORE ..	Jubbulpore	28,584	32,550	3,972	..	
	Saugor	28,688	33,197	4,509	..	
	Dumoh	16,200	15,590	..	700	
	Seonega	5,107	5,107	..	..
	Mundlah	994	1,362	368	..	
	Total..	79,573	87,722	8,849	700	
NERBUDDA	Baitool	1,372	3,089	1,717	..	
	Chindwara.....	9,000	7,500	..	1,500	
	Hoshungabad	35,200	7,453	..	27,747	
	Nursingapore.....	59,900	32,102	..	17,898	
	Nimar	25,900	24,661	..	948	
	Total..	121,481	75,105	1,717	48,093	
CHUTTERESGURH	Raepore.....	9,274	10,925	1,651	..	
	Sumbulpore	60,000	90,000	30,000	..	
	Belaspore	31,000	46,777	15,777	..	
	Total..	100,274	147,702	47,428	..	
	Upper Godavery	402	569	98	..	
	Total Central Provinces.	528,801	552,520	59,368	105,649	
						Total 46,281 Decrease.

(Signed) H. RIVETT-CARNAC,
Cotton Commissioner for the Central Provinces and the Berars.

Dated Camp, Khangaon, 28th June 1868.

crop of the Central Provinces, a Statement (**B**) has been prepared in which the total cultivated area, the area still available for the extension of cultivation, the percentage sown with cotton, and other particulars of each district are given, and from this it will be seen that, as is well known, the chief cotton growing tracts lie along the Wurdah

Small proportion borne by cotton to other crops in the Central Provinces.

River, in the south-west portions of the Nag-pore, Wurdah, and Chandah Districts. Indeed the statistics furnished by the Settlement Department for the 15 districts in which the Land Revenue Settlement has been completed,

and for which reliable data have been collected, show the proportion borne by cotton to other produce to be so small, and indicate that the cultivation is capable of so great extension, that I have introduced the information here. The figures taken from Mr. Morris's last Administration report are as follows:—

	AUTUMN.		SPRING.
	Acres.		Acres.
Wheat.. . . . .	....	....	2,843,414
Rice	1,472,656	....	....
Jowaree (<i>Millet</i>)	1,246,742	....	20,881
Gram (<i>Chenna</i>) .. . . .	....	....	567,214
Cotton	512,658	....	....
Other food grains	1,024,959	....	353,879
Oil Seeds	200,270	....	265,685
Tobacco	11	....	14,888
Sugar-cane .. . . .	....	....	59,778
Opium.. . . . .	....	....	7,584
Miscellaneous	61,144	....	66,209
<hr/>		<hr/>	
Total..	4,518,440		4,199,532
<hr/>		<hr/>	
		Grand Total..	8,717,972

These figures are for 15 Districts only.

Thus whilst wheat, rice, and jowaree represent, respectively, 32·62, 16·89, and 14·54 per cent. of the total cultivation, but 5·87 per cent. of the total cultivated area is devoted to cotton. It is everywhere treated as an autumn crop, save in the Chandah District, where a small quantity of the Jurree cotton is sown after the rains, and picked in the hot months.

8. In the Wurdah District, cotton takes up about 23·31 per cent. of the total cultivated area, and monopolizes about one-half of the June

B.

STATEMENT showing the Population, Revenue, total area, culturable and cultivated area of each District in the Central Provinces, with the area under Cotton cultivation, and the proportion borne by that cultivation to the culturable and cultivated area of each District.

Districts.		Population.	Revenue Rupees.	Total area in Square Miles.	Total area in Acres.	Cultivable area in Acres.	Cultivated area in Acres.	Area under Cotton cul- tivation, Acres.	Percentage of Cotton cul- tivation to cul- tivated area.	Percentage of Cotton cul- tivation to cul- tivated area.
Divisions.										
NGC.	Nagpore	634,121	796,941	3,682	2,356,480	1,979,257	1,115,500	47,079	2·38	4·22
PoRE.	Bhundara	578,161	512,169	5,601	3,584,640	2,920,274	1,000,430	30	0·003	
NGC.	Chandauli	537,295	586,896	10,299	6,400,000	4,295,281	696,291	50,679	1·18	7·28
Wurdah	343,485	205,811	2,392	1,530,880	1,424,676	854,759	199,223	13,98	23·31	
Total ...	2,263,062	2,072,817	21,675	13,872,000	10,619,688	3,666,980	297,011	2·83	8·10	
Jubbulpore	620,201	558,273	4,856	3,107,540	2,701,635	1,079,645	28,584	1·05	2·65	
Saugar	498,642	346,645	3,925	2,513,920	1,759,349	622,016	28,684	1·63	4·61	
Dumoh	262,641	254,926	2,457	1,572,480	1,072,682	377,960	16,200	1·51	4·21	
Seonee	455,462	217,747	3,433,600	1,820,125	657,126	5,107	2·8	·75		
Mundlah	184,699	47,672	5,134	3,285,760	930,047	396,764	994	·11	·25	
Total ...	2,024,645	1,425,263	21,740	13,913,600	8,293,838	3,133,511	79,573	·96	·25	
Hoshungabad	427,418	425,460	3,997	2,558,080	1,470,402	786,482	35,200	2·39	4·48	
Baitool	244,554	185,265	3,500	2,304,000	1,139,200	631,470	1,372	·12	·22	
Nursingpore	336,796	421,523	1,916	1,921,240	1,049,772	558,644	50,000	4·78	9·95	
Chindwara	327,875	244,501	4,255	2,723,200	1,438,143	512,898	9,000	·62	1·75	
Nimar	226,969	208,813	3,584	2,293,760	711,779	290,611	25,909	·64	9·23	
Total ...	1,563,912	1,465,562	17,352	11,105,280	5,884,296	2,770,105	121,481	2·09	4·38	
Raepore	952,754	356,658	8,453	5,409,920	5,319,045	2,569,731	9,274	·17	·36	
Belaspore	699,468	209,558	5,873	3,758,720	3,396,702	1,045,993	31,000	·19	2·96	
Sumbulpore	452,348	75,612	5,632	3,604,480	2,883,584	720,596	60,000	2·08	8·32	
Total ...	2,104,670	671,827	19,958	12,773,120	11,624,331	4,336,620	100,274	·88	2·31	
Upper Godavary	54,680	22,401	2,274	1,255,360	1,128,236	43,478	462	·36	1·06	
Grand Total	8,010,369	5,657,870	28,999	53,119,360	36,495,349	13,950,694	538,801	1·64	4·29	
Feudatory	1,093,642	111,957	31,719	20,300,160	20,299,520	2,022,831	...*	..	...
Grand Total Central Provinces.	9,104,511	5,769,827	114,714	73,419,520	56,794,909	15,973,525	598,801			

(Signed)

H. RIVETT-CARNAC,
Cotton Commissioner for the Central Provinces and the Berars,

Dated Camp, Khangaon, 28th June 1868.

District in which cotton
is chiefly grown.

sowings. In Nagpore and Chandah the proportion of the cultivated lands devoted to this crop is 4.23 per cent. and 7.28 per cent. respectively, and it is from these three districts that cotton is chiefly exported. As we proceed north, across the Sautpooras, the place of cotton is taken by grain and other crops, and the same is to be said of the cultivation in the Eastern Division. In the districts situated among the Sautpoora hills, and in the Nerbudda valley, the area sown, with cotton, as compared with other crops, is as 1 to 21. In the Chittesgurh country the proportion stands as 1 to 43. In all these districts the greater part of the cotton produced is taken up for local consumption. The Wurdah Valley and that portion of the Nimar District lying south of the Sautpoora hills, which in all its characteristics, assimilates to Berar and the cotton-growing-country of the old Nagpore Province, are the only tracts in the Central Provinces in which it can be said that cotton is grown in any quantity for exportation.

The cause of the great disproportion in the cotton acreage in the different districts in these Provinces is easily

Cause of this. traced, and is to be found in the geological

formation of the country, and in the advantages that some districts possess in regard to position and communications for disposing of this class of produce. Nagpore, Wurdah, and Chandah, the south portion of Nimar, and Berar also which intervenes between them, all lie within the boundary of the great sheet of trap-rock of the Deccan, which, commencing near Mudnoor, ends abruptly at the Seetabuldee hill near Nagpore. This formation provides the black cotton soil, which is so favourable to cotton cultivation, and from which it takes its name. The proximity of these districts to the Bombay market, and the presence of the Railway which runs through them all, offer facilities for the export of cotton and inducements to undertake the cultivation. The remaining districts are not only less conveniently situated, but have not the advantage of the peculiar soil and excellent drainage which makes cotton cultivation in the valley of the Wurdah in ordinary seasons so decided a success.

9. A reference to the reports and statistics published, since the formation of the Central Provinces into a separate

Cotton sowings of 1867
compared with returns of
previous years.

Administration, up to date, shows that, notwithstanding the decrease noticeable in this season's returns, the area sown with cotton during 1867-68 was rather above the average of former years, and these figures are introduced here as showing the firm posi-

tion that this class of cultivation has maintained since the American war caused that extraordinary rise in prices which has had such a marked effect on this part of India:—

	Acres.
1861-62	375,628
1862-63	427,111
1863-64	488,436
1864-65	690,198
1865-66	587,398
1866-67	598,801
1867-68	552,520

The average for the six preceding years is then 527,928 acres compared with the 552,520 acres of this year's sowing. The out-turn shows a decrease for which, with a favourable monsoon this season, it will not be difficult to make up.

COTTON CULTIVATION IN THE BERARS.

Next in order it will be convenient to consider the Cotton cultivation in the Berars as compared with the Central Provinces.

10. An analysis of the Berar returns gives a result somewhat different to that shown by the Central Provinces figures. Although the Revenue Settlement of those Provinces, conducted by the

Examination of returns of cotton cultivation in the Berars. Bombay Survey, with the help of which alone really accurate statistics can be expected, has not yet been completed, still the figures of the annexed Statement may be accepted as giving a sufficiently correct idea of the area sown with cotton. Some further statistics, of interest as showing the agricultural prosperity of that part of the Provinces in which Settlement returns have been prepared, have been given me by Colonel Elphinstone, and will be included in my Memorandum. Although a considerable decrease is shown in the returns in Oomraotee and Mekhur, the falling off is balanced by the extension of the cultivation in the Akola and Woon districts.

Decrease in the Oomraotee and Mekhur Districts.

Now it is not easy to test the accuracy of these returns, which, save where the Settlement measurements are available, must be taken as an approximate estimate only. But I may mention that the result of my inquiries tends to show that, in the Oomraotee district, there really was a decrease, and this is partly to be accounted for by the circumstances of the eastern part of Berar having suffered nearly as severely from the heavy

C.

*STATEMENT showing the Area under Cotton cultivation in the Berars during 1867-68,
as compared with 1866-67.*

Divisions.	Districts.	1866-67, Acres.	1867-68, Acres.	Increase.	Decrease.	Remarks.
EAST BERAR	Oontractee	469,438	418,353	....	51,035	
	Woon.....	134,070	175,800	41,730	....
WEST BERAR	Akola	492,834	550,571	57,737	....
	McKhar.....	142,624	109,828	....	32,796	
Total.....		1,238,966	1,254,552	99,467	\$3,381	Total 15,586 Increase.

(Signed) H. RIVETI-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars,

Dated CamT, Khangao, 25th June 1868.

monsoon as did the neighbouring fields in the Wurdah district. The decrease in the exports in this Division, to be noticed in a later paragraph of this despatch, confirms the view that so much land was not sown with cotton last season as in preceding years. The "western part of Berar entirely escaped the unseasonable weather, which destroyed the young plant in some other parts of Central India, and here the stunted cotton was not ploughed up in September in the hope of

obtaining a more healthy crop of wheat or
Causes of this. some other grain by sowing the land for the

spring harvest. Here too the measurements having been completed, the returns may be accepted with less hesitation. The net result is an

increase of 15,586 acres in the year under
Increase in the other notice as compared with the cotton sowings of
Districts.

1866-67. As compared with the returns of
previous years, the figures for 1867-68 stand as follows:—

	Acres.
1864-65.....	1,196,300
1865-66.....	910,000
1866-67.....	1,238,966
1867-68.....	1,254,552

and this year's sowings will then be seen to be rather above the average.

11. A glance at the annexed Statement (D) will show how large a portion of the cultivated area of the

Large proportion of
cotton cultivation in the
Berars to the cultivated
area.

In the Central Provinces the percentage borne by the area under cotton cultivation to the cultivated area has been shown to be 4.29 per cent., whilst in

Wurdah, the district most thoroughly imbued with a cotton growing spirit, the percentage did not exceed 23.31 per cent. of the total cultivation.

Here in Berar 17½ per cent. of cultivated land is sown with cotton. Grain and other produce are grown in the following proportions: Grain of sorts 65½ per cent., Oil Seeds 5 per cent., Garden cultivation 2 per cent. In the valley of the Poornah, cotton monopolizes 32 per cent. of the cultivated land, and when it is remembered that an area at least equivalent to that sown with cotton must be reserved each year for other produce so as to admit of the rotation of crops, and that in the Poornah valley it is absolutely indispensable to preserve a small portion of the land for grazing grounds and timber nurseries, it will be seen how thoroughly the benefits of the cotton trade have been appreciated by the inhabitants of the Berars. Indeed the Poornah valley possesses nearly all the advantage of soil and position which are calcu-

D.

STATEMENT of Population, Revenue, Area, &c, of the Berars.

Districts.	Population.	Revenue Rupees.	Area in square miles.	Area in acres.	Cultivated area.	Cotton culti- vation.	Percentage of Cotton culti- vation to cul- tivated area.
Oomraotee	569,494	1,388,653	3,035	3,222,400	1,428,647	418,353	29·28
Woon	300,349	417,045	5,875	3,760,000	696,433	175,800	25·24
Total ...	869,843	1,805,698	10,910	6,982,400	2,125,080	594,153	27·95
Akola	491,036	1,774,072	3,411	2,183,040	1,610,123	550,571	34·19
Mekhur	225,168	674,540	3,013	1,928,320	857,625	109,828	12·81
West Berar.	716,204	2,448,612	6,424	4,111,360	2,467,148	660,399	26·76
Grand Total Berars....	* 1,586,047	4,254,310	17,334	11,093,760	4,592,228	1,254,552	27·31

* These figures are taken from the old returns. I believe the recent census shows the population to be nearer 2,000,000.

(Signed) H. RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars.

Dated Camp, Khangaoon, 28th June 1868.

E.

STATEMENT showing the area under Cotton cultivation in the Central Provinces and the Berars during the year 1867-68, as compared with 1866-67.

Divisions.	Districts.	1866-67. Acres.	1867-68. Acres.	Increase.	Decrease.
NAG- PORE.	Nagpore	47,079	48,350	1,271	....
	Bhundara	30	35	5	....
	Chandah	50,679	35,000	....	15,679
	Wurdah	199,223	158,046	....	41,177
Total....		297,011	241,431	1,276	56,856
JUBBUL- PORE.	Jubbulpore	28,584	32,556	3,972	....
	Saugor	28,688	33,197	4,509	....
	Dumoh	16,200	15,500	....	700
	Seonee	5,107	5,107	....	....
Total....		79,573	87,722	8,849	700
NERBUD- DA.	Baitool	1,372	3,089	1,717	....
	Chindwara	9,000	7,500	....	1,500
	Hoshungabad	35,200	7,453	....	27,747
	Narsingapore	50,000	32,102	....	17,898
Total....		121,481	75,105	1,717	48,093
CHIT- TEES- GURH.	Raepong	9,274	10,925	1,651	....
	Sumbulpore	60,000	90,000	30,000	....
	Belaspore	31,000	46,777	15,777	....
	Total....		100,274	147,702	47,428
Upper Godavery		462	560	98	....
Total....		598,801	552,520	59,368	105,619
<i>The Berars.</i>					Total Decrease.
EAST BERAR	Oomraotee	469,438	418,353	....	51,085
	Woon	134,070	175,800	41,730	....
	Akola	492,834	550,571	57,737	....
	Meklur	142,624	109,828	....	32,796
Total....		1,238,966	1,254,552	99,467	83,881
Central Provinces		598,801	552,520		Total
Berars		1,238,966	1,254,552		Increase.
Grand Total Central Pro- vinces and Berars		1,837,767	1,807,072		
Decrease in Central Provinces		....	46,281		
Increase in the Berars	15,586		
Total Decrease in the Cen- tral Provinces and Berars		30,695		

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Cotton Commissioner for the Central Provinces and the Berars.
Dated Camp, Khangaoon, 28th June 1868.

lated to ensure the success of the trade, and the Berars must undoubt-
edly be considered to be one of the very finest cotton fields in India.

12. The position of cotton cultivation in the Central Provinces and the Berars in 1867-68 is shown in detail in the annexed statement (**E**), and may be briefly stated as follows:

Compared with the previous years there was a falling off of 46,281

*Abstract of the returns
of the cotton cultivation
in the Central Provinces
and in the Berars in the
year 1867.*

whilst compared with the

Total acreage sown
with cotton in 1867 about
the same as in previous
years.

acres in the Central Provinces, and an increase of 15,586 in the Berars. Taking the two Provinces together, the total acreage under this class of cultivation during the season fell short of that of the former year by 30,695 acres, the average of the preceding years, an increase of 66,500 acres may be credited to last year's sowings. Cotton cultivation, indeed, held its own well during 1867, notwithstanding that at the close of the season immediately preceding the sowings, prices were low, and prospects appeared somewhat gloomy, and thus

the report which I ventured to make early last season, that, from what I could ascertain, no falling off in the area sown with cotton in the Central Provinces and the Berars was to be apprehended, whilst at the same time no extension of the cultivation was to be looked for, has thus not proved incorrect.

The cause of the slight falling off in the cultivation in the Central Provinces will now be shown.

SECTION II.

EFFECT OF THE WEATHER UPON THE COTTON CROP OF 1867-68.

13. Although the area sown with cotton during the year under report was much as usual, still, owing to the severe and exceptional weather already alluded to, the out-turn of cotton this season, particularly in the Wurdah valley, where the best description is grown, has been much below the average yield. Indeed, in nearly every part of the Central Provinces, the pitiless rain that continued far into October, did great damage, and the cotton crop of 1867-68 has been the poorest in quality, and, to use a technical expression, "the shortest" in quantity that has been known for some years past.

14. The weather reports periodically submitted by me and published by permission of Government, for the information of those interested in the cotton-trade, must, I think, have prepared the Resident to hear of an unfavourable cotton season. The monsoon of 1867 caught me when I was in Camp in Berar, on the 16th of June, and during the twelve succeeding days we had 14 inches of rain, $4\frac{1}{2}$ inches falling in the Wurdah valley on the 26th of that month. From the first, this severe weather caused some little anxiety to the cultivators, but, as the crop is one which picks up rapidly during the bright days which generally follow the heavy rain, and break the gloomy instalments of the monsoon, no great fear was entertained for the safety of the cotton. But the invigorating breaks did not come at the time they were most wanted. July too was exceptionally wet, the quantity of rain registered during that month amounting to 12.75 inches, and raising the total rain-fall from the setting in of the monsoon (barely six weeks) to 26.75 inches. How trying such

The heavy rain of June and July. weather must have been to the cotton crop, will be understood when it is mentioned that the usual rain-fall for this period does not exceed 19.36 inches, whilst the average rain-fall for the whole year in this part of India is but 39.75 inches.

15. For the first seventeen days of August, the rain, though not

Continued unfavourable weather during August and September.

very heavy, was incessant, and the uneasy feeling to which the weather had by degrees given rise, began to develop into anxiety not only for the cotton, but for the safety of all the crops of the June sowings. On the 17th of

August however, the clouds broke up, and on the following day the sun made its appearance for the first time for nearly three weeks; the weather continued fair until the 2nd of September, when the rains again set in heavily. On the 8th of September there was another break, and as the barometer began to rise steadily, all who had knowledge of this part of the country were of opinion that we had seen the last of the monsoon.

16. Up to this time, notwithstanding the 46 inches of rain that had fallen, a general hope was entertained, that, with a continuance of bright cheerful weather, the cotton crop might yet escape without any very material injury. Much of the seed had not been put into the ground until after the first down-pour; when

the heavy rains returned, the plants were sufficiently vigorous to bear it, and the sunny days that had just commenced would tend, it

was hoped, to cheer and revive the drooping plant. Writing at that time, I reported that "the plant is just beginning to put forth buds and flowers. Heavy rain just now (September) would hurt the delicate petals, and cause much damage, but in another three weeks' time, when the pods begin to form, and the now abundant moisture has become exhausted, 'the later rains' will be very grateful to the plant. In November, when the pods burst, and the cotton is ready for picking, rain, if it falls, stains and damages the cotton. Fine weather is wanted now; we must hope for occasional showers during the early part of October. After that, the finer the weather, the better for the cotton crop."

17. But these hopes were not to be realised. On the 16th of September, the wind veered round to the north-east and appeared to bring back upon us the whole mass of clouds that had deluged the country during the previous months. The plants, for which at that time a respite from the pitiless rain was so urgently needed, could no longer make head against the continued down-pour, and when, at the

Tour though the Wurdah valley in October.

commencement of October, the weather at last admitted of my making a tour through the Wurdah valley, I found that the damage done to the cotton crop had been very serious, and there also appeared to be reason to fear that the spring crops, the sow-

ings of which had been delayed, might also be affected. Up to this time the total rain-fall for the 10 months of the year had reached the extraordinary height of 58·52 inches, against 39·75, the average fall for the full 12 months of the twenty preceding years, and still the monsoon had not ceased, and the rains showed no signs of abating. Before the year closed, 59·1 inches of rain had been registered at Nag-pore. The figures in the accompanying Statement (F) of the rain-fall for 1867, as compared with that of former years, will show with what an exceptional season the cotton crop had to struggle.

18. The effects of such a season were very marked throughout the Hingunghat country, on which the Central

Damage done to the Province depend for their largest and best crop in the Wurdah valley. supply of cotton. Here I found that on the low-lying grounds, where the lands were not

thoroughly drained, the deep mud had smothered the plants; and the importance to the cotton of good drainage was very apparent. Many of the fields bore the signs of floods, or were cut up by deep water-courses through which the rain had escaped. Save in very favourable localities the cotton was stunted and sickly-looking, and throughout the district the plant was choked by the thick crop of rank weeds, which the continued damp had fostered, and for the removal of which the incessant rain had allowed but few opportunities. In many places the damage done had been so decided, that the cultivators, regarding the cotton as utterly lost to them, ploughed up the plants, so as to admit of their trying their luck with a spring crop in the same field. Most of my experimental fields, as will hereafter be mentioned more in detail, shared the same fate; and seeing that the plants were utterly destroyed, I could not object to the owners of the land using the ground for the spring harvest. It was predicted that, in all parts of the district, save in the north-west, towards Arvee, where the rain had been less moderate, the out-turn of cotton would be injuriously affected, and this opinion, as will be shown in a later paragraph, unfortunately turned out to be only too correct.

19. In the country north of the Sautpooras, the cotton shared the same fate, the rain-fall there being even

Damage to the crop in the Nerbudda valley. heavier than in the country immediately around Nagpore. From all the districts of the Nerbudda the accounts received were unsavourable. In Saugor and in Dumoh the rain-fall registered was double the average, $8\frac{1}{2}$ inches of rain falling in one night at the former station. In the Nerbudda valley, where the average rain-fall for the whole year is but 40 inches, upwards of 70 inches of rain fell

F.

STATEMENT showing the annual Rain-fall in the Central Provinces from 1854 to 1867.

YEARS.	MONTHS.												TOTAL.
	January	February	March	April	May	June	July	August	September	October	November	December	
1854	0	8	0	4	5	0	5	2	0	1	1	0	324
1855	0	9	8	0	4	5	0	5	4	4	4	4	313
1856	0	1	4	0	0	6	0	6	2	0	2	0	292
1857	0	1	4	0	0	6	0	6	2	0	2	0	279
1858	2	0	7	0	4	1	1	1	9	1	10	5	264
1859	0	1	4	0	0	6	0	6	2	0	4	4	240
1860	0	1	4	0	0	6	0	6	2	0	4	4	238
1861	3	1	1	0	5	4	1	0	5	1	3	5	413
1862	0	1	2	0	0	6	0	6	0	5	1	3	417
1863	0	1	2	0	0	6	0	6	0	5	1	3	410
1864	0	1	1	0	7	0	7	4	1	9	3	1	210
1865	0	1	0	9	0	6	0	1	0	10	6	0	113
1866	0	1	0	3	6	0	1	0	1	0	10	2	1014
1867	0	1	0	3	4	2	7	0	1	5	0	14	411

(Signed) H. RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars.

Dated Camp, Khangao, 28th June 1868.

during the few months of the monsoon alone. The damage done to all the crops was considerable. Where during the first part of the monsoon the cotton seed was not completely washed out of the ground, later the heavy rain stunted the plant, and lastly came the floods of the Nerbudda, by which many of the fields were ploughed up and much valuable property destroyed. In the Chandah district too, the same causes prevailed to reduce the crop. I cannot do better than allow Captain Lucie Smith, the Deputy Commissioner, who takes great interest in, and watches the cotton cultivation of his district very carefully, to describe the damage done in Chandah in his own words. He says:—

Captain Lucie Smith's description of the damage done in the Chandah district.

“As compared with 1866 the area sown with Bunnee cotton is 50 per cent., and the produce per acre will be about 88 per cent., less. These results are traceable to the following causes:—

I.—“The rain commenced so early, and fell so continuously, that cultivators could only manage to put down a portion of the seed that they had intended to have sown.

II.—“Of the seed put down, much was washed out of the ground by the violence of the rain, or destroyed by constant moisture.

III.—“Later in the season, great quantities of plants were damaged or swept away by frequent and unusually high floods of the Wurdah and its tributaries, every slender rivulet swelling at these times into a broad, though generally shallow, stream.

IV.—“Many plants were killed and all were injuriously affected by the constant rain, and by the absence of sunshine when the rain stayed.

V.—“And the great growth of weeds which it was impossible to check in the wet state of the ground did much damage. The prospects of the Jurree crop, which in this district is of far more importance than the Bunnee, are most discouraging, but even the out-turn of Jurree will be under the average.

“The long continued rain has covered the fallow lands with weeds and grass, and where the position is low, has prevented the plough being used, thereby reducing the area sown with Jurree by 25 per cent. as compared with 1866.

“Then, while the Jurree plant in ordinary years would by this date be a foot in height, in the present year the seed has not yet germinated; and it is feared that the plants will not reach their full development. This has led to the produce per acre being estimated at 18 per cent. less than 1866.

"Taking both crops, Bunnee and Jurree, the total area under cotton in 1867 is 31 per cent. less than in the previous year, and the out-turn will probably show a decrease of 52 per cent. or about 13 millions of pounds of ginned cotton.

"This decrease, I would add, is simply owing to unfavourable weather, and has in no way been affected by the fluctuation of the cotton market."

20. The Districts of the Chutteesgurh Division fared somewhat better, the rain-fall there being, if anything,

The crop in the Chutteesgurh country. slightly below the average, but the quantity of cotton exported from the Eastern District is not sufficient to compensate for the damage done in the more important parts of the Province.

21. Fortunately in the Berars, in the two Divisions of which more cotton is grown than in all the Districts of the Central Provinces put together, the weather was favourable enough, and the out-turn was not affected by the monsoon, and had it not been for the very heavy rain which, falling in January and February, when

The weather in the Berars more favourable. the ripe cotton was not yet picked, stained the wool and destroyed many of the pods and flowers, the cotton crop of the Berars would have been

as large in quantity and as excellent in quality as any that has ever left these Provinces for the Bombay market. The Gomraoee and Woon District indeed came in for part of the heavy rain that flooded the neighbouring lands of the Wurdah valley, but further west throughout the whole valley of the Poornah, the season was very favourable to the khureef sowings, and when, in the month of November, the Resident made his tour through Berar, it was universally admitted by the farmers, who, as a rule, are not inclined to make the best of things, that the harvest was an excellent one, the best, said many, "since the cession."

22. Later, at the end of January, there came, quite unexpectedly, a second monsoon which, in Berar, effected nearly as much damage as the earlier rain had caused in the Central Provinces, and of their escape from which the Berar farmers had so much congratulated themselves. The heavy rain set in two days before the opening of the Akola Exhibition, and continued incessantly for nearly a week, and as damping the spirit of the visitors, and preventing many hundreds of the country people from attending the show, was regarded as no small misfortune.

The heavy rain of January. But, however great the disappointment at

Akola was, it could not, of course, be compared with the damage to the cotton crop and the trade, and the great loss to the country which resulted from this unseasonable rain. In the

The great damage caused thereby.

straining every nerve to keep their constituents in Bombay fully supplied with cotton. How completely such weather

Sudden stop put to the trade.

puts a stop to all business requires to be experienced to be fully realized. The rain

swells the water courses, and in their present state renders most of the roads impassable, and thus closing the communication between the cotton-growing villages and the large towns, cuts off the supplies from the markets. Even were the cotton to pour in at this time, no one would purchase it during the rain. The damp and moisture so affects the weight of the "*dokras*" or loose bags of cotton, that he who purchases will probably find when the weather clears up that his now dry cotton weighs many pounds less than the quantity for which he had stipulated. Nor can cotton be packed or pressed in a damp state, save at the risk of mould and damage. And any one who has watched the natives of this part of the country must know how hopeless it is to expect to get any work out of them in rainy weather. In the damp they seem to get "ungummed" both morally and physically; they are capable of but little exertion save huddling themselves up in their huts, and even if it were desirable to carry on the buying and packing at such a time, the necessary labour could only be procured with the greatest difficulty. From this it will be understood what great inconvenience is caused to the trade by heavy rain during the cotton season. But the worst has yet to be told. The seasons in this part of India are generally so regular and partake so little of that uncertainty, which, at Home, causes anxiety for the safety of the crops, that the farmers of Berar take no precautions whatever for protecting their produce against such inclemencies of weather as overtook them last January and February.

The value of cotton depends, of course, to a great extent, on its freedom from dirt and stain. If it is exposed to rain when ripe, damage is inevitable. But, as a rule, from the month of November, when the pods burst, until June, by which time the whole of the cotton intended for exportation has left the Provinces, heavy rain is unknown in the Berars. About Christmas there may be occasional showers, but as they generally occur when the first pickings of cotton have been made, they do no harm, but rather help to refresh the plant, and to bring

forward the young pods for the second pickings. This year the season was a late one. The market too was dull, and the cultivators, having no particular inducement to bring forward their cotton, busied themselves in cutting the grain crops which were urgently required for home consumption. When then on the 23rd January the most extraordinary weather that has been known in the Berars for years suddenly set in, the rain found the fields rich with a magnificent crop of ripe, unpicked cotton, and the damage done was most cruel. The cotton was beaten off the plant on to the ground by the rain, and there left to lie for days steeped in the liquid mud of the fields, the rich soil of which in its blackness affords so striking a contrast to the glossy white cotton which it produces. And the cotton that had been picked hardly fared very much better. Even when stored it is seldom covered or protected against bad weather, which being, as I have already mentioned, almost unknown at that time of the year, does not force upon the cultivators the adoption of precautions that would not be disregarded in other countries. The cotton stored in the open yards adjoining the village homesteads, if it escaped being dashed about in the black mud of the fields, suffered from the rain which, pouring down on the stacks, destroyed the natural gloss of the cotton, and damping it left numerous stains and much black leaf which no machine that has yet been invented has

succeeded in removing. And thus it happened

Damage caused to the ripe cotton by the rain. that, this year, the greater part of the cotton crop of the Berars, favourably known by the name of "*Oomraotee*" and "*Oomraotee Akote*" was brought to the market in a state which contrasted sadly with the excellent cotton sent down from here to Bombay in former years. As the damaged dokras sold at a much lower price than the cotton which had been picked before, or had ripened after, the heavy rain, or had enjoyed the advantage of being carefully stored, the cultivators whose fields had suffered lost very heavily. It made one quite sorry to see the poor fellows with their bags of, what in the market went by the name of the "*pani-ka-mâp*"* of 1868, and to the credit of the Berar Koonbies be it told, that, although instances were not wanting of bags of damaged cotton being falsely packed so as to pass off as superior stuff, still, as a rule, the poor cultivators, the heavy losers, came forward honestly, and separating the bad cotton, offered it for sale at a reduced price, and were not generally guilty of the false packing in which many of the petty dealers later in the season systematically indulged. The unseasonable rain, by destroying many of the pods of the second and third pickings, to some extent affected

* Cotton damaged by the rain.

the out-turn also, and I have calculated that altogether this deplorable weather cost the Berar peasantry not less than 8 lakhs of Rupees or £80,000. The damage caused to the credit of the Oomraotee cotton in the European market cannot be estimated quite so easily.

Damage done to the character of the Oomraotee cotton by the rain.

But as bad cotton was in some cases purposely mixed with the good, much of what had not suffered from the weather did not escape without taint, and thus it is to be feared that the loss of character occasioned to our cotton may be great.

23. How unfortunate the unusual weather was, and what excellent cotton was thereby damaged, will be learnt from the following remarks contained in the review of the cotton season by one of the Bombay cotton houses. "The quality of this year's crop on the whole has been good. Oomraotee before the rain came and damaged it, was excellent, so also was the Broach; latterly, however, both these cottons showed a most indifferent sample, the former being full of black leaf, while the Broach was so stained as to be almost yellow."

24. Still the dark clouds of damage of last January's rain were not, I hope, without their silver lining, though perhaps not in the shape of the hard cash which the Koonbees might have preferred. It is well known how imprudent in many respects the cultivator of this part of India is. It has long been a source of regret and complaint that the cotton is left unpicked so late that damage is occasioned to it by dust and dirt. To any slight loss resulting therefrom, the cultivator, intent upon the field in which he has sown "*Jowaree*," the crop which is to provide food for his family and for the cattle during the year, has, as yet, been inclined to submit rather than depart from his established custom, of cutting the Jowaree first; and as in old days he seldom received from the Mahajun any better price for the good cotton than for the bad, he had no sufficient inducement to pick this crop in good time. But the heavy rain at the commencement of this year has had the effect of teaching him, at some expense perhaps, an important lesson; and the uncertainty to which this unusual season has given rise is such, that, in future, it is hardly probable that the ripe cotton will be allowed to take care of itself as heretofore, and we may thus expect to see the pickings commenced earlier next year. Thanks too, chiefly

Lessons taught to the farmers by the unseasonable rain.

to the European Agents, to the advantage of whose presence amongst us further reference will be made hereafter, a still more important lesson has been impressed upon all the ryots throughout Berar this season. They have now learnt that their gains will not altogether depend, as of old,

upon the *quantity* of their cotton, but that they may expect to be paid for their produce according to the *quality* of what they bring for sale. The presence of the damaged cotton in the market, and the great difference in the price paid for the *bhojahs** of good cotton, and the *pani-ka-mâl*, helped the sellers to realise, in a very substantial manuer, that if they will but be careful in cultivating and preparing their cotton, they may rely on securing a better price for the improved article. Such a lesson, impressed upon them through the medium of their pockets, is invaluable, and will prove more effective in the cause of improved cultivation than the exertions of an unlimited number of the very best of Cotton

Good that may result therefrom. Commissioners. If then the rain and damage of this season shall have the effect of inducing

the people to cultivate their cotton more carefully, and to pick it earlier than heretofore, good may yet come out of evil, and the loss experienced this year may prove to be, after all, a sound investment, which in future years may repay our farmers a hundred-fold, by the higher character which their produce will command, and by the enhanced prieses and increasing trade in which such improvement may be expected to result.

25. I have dwelt thus at length on the state of the weather during the past season, because, as I am confident Mr. Saunders will understand, this must always be a subject of the greatest interest and

Reasons for dwelling at length on the state of the weather last season. importance to a Cotton Commissioner, and must have a very decided effect on his exertions.

On the weather depends, not only the sowings and out-turn of the crop ; but the quality of the cotton, the exports from this part of the country, and the result of any experiments which may be undertaken by the Cotton Commissioner and others. And I have tried to describe the effects of last season's rain, because in the unprecedented down-pour of 1867-68 will be found the explanation of the questions, which I am sure, will soon be asked by all interested in our cotton.

I.—Why is the cotton of Central India so inferior this season ?

II.—How is it that the exports have fallen off?

* In the market of the Berars cotton is sold by the *Bhojah* of 280 lbs. or 266 nett, about three of which *Bhojahs* go thus to the *Bombay Kandy*. " *Bhojah*" literally means "a load," par excellence a *bullock load*, i. e., the two bags of cotton which are slung pannier fashion on a bullock's back. The name etakes us back to the times when all the cotton was brought to market, and sent on to *Bombay* or *Mirzapore* on *bullocks*. Now-a-days this class of carriage is seldom used, save for the cotton grown above the Ghauts (or hill range) or brought from a great distance south in the Nizam's country.

In the present state of our cotton trade, it appears desirable that an attempt should be made to answer these questions as satisfactorily as possible. It has already been felt that much of the cotton exported from these provinces during the past season, has, in quality, been very inferior to the produce of former years. At a time when every endeavour is being made to improve the quality of our cotton, such an occurrence is most unfortunate, but I wish it to be clearly understood that the damage to the cotton resulted from circumstances which no Government and no Cotton Commissioner could control, and lest anxiety be felt for the future stability of the trade, on account of decreased exports, I am desirous to explain also that much of the falling off is to be attributed to the same unavoidable circumstance, the extremely unfavourable weather with which the cotton crop had to contend. If the seasons be not unpropitious, there is no reason why, in future years, both the quantity and quality of the cotton of these Provinces should not keep up to the standard of the past, and I can promise to do my best to raise that standard still higher. I hope then I may be excused for having dwelt at such length on a subject which, otherwise, might not be considered of general interest or importance.

SECTION III.

EXPORTS OF COTTON FROM THE CENTRAL PROVINCES AND THE BERARS DURING 1867-68.

26. The preceding paragraphs will have prepared Mr. Saunders to hear of a decrease in the exports. To convey

Falling off in the exports from the Central Provinces in 1867-68.

a correct idea of the great falling off in the cotton exported from the Central Provinces during the season, it will be necessary to consider the returns of former years. The figures of

the preceding season, 1866-67, are of the most immediate interest, and they show the exports from the Central Provinces during that year to have amounted to 81,000 bales, of 400 lbs. each, or about 283,500 ects. Of this sum, however, about 20,000 bales represented cotton brought into the Central Provinces from neighbouring territory for facility of export, or in order to gain the name of our favourably known markets, and this would reduce the actual produce of our districts exported to 61,000 bales.

Exports during 1868 compared with the returns of the previous season.

Of the total 81,000 bales available for export, about 73,000* bales found their way down to the Bombay market, about 53,000 coming from Wurdah valley or Hingunghat, and

20,000 from the Nerbudda lying country

and the districts north of the Sautpooras. The greater part of it was carried by the G. I. P. Railway, a very small portion only finding its way along the old Karinja-Poona road to Panwell.† The remainder is thus accounted for, with the help of the trade returns: 25,000 maunds or 5,000 bales, were carried across the northern frontier towards Mirzapore and the North-West Provinces, and 16,000 maunds, or rather over 3,000 bales, were sent down the Mahanuddy River to Cuttack and Bengal.

27. The average exports of former years from the Central Provinces would appear to be 62,700 bales, of which about 50,000 bales are taken by the Bombay market, and this average has been arrived at by the help of the following figures taken from former reports:—

Average exports of former years from the Central Provinces.

* Only 53,000 bales of this was *our own* Cotton.

† Opposite the Bombay Harbour.

Exports of Cotton from the Central Provinces during the undermentioned Years.

						Bales.
1861-62	..	..	..	..	..	36,250
1862-63	..	..	..	..	..	58,750
1863-64	..	..	..	..	..	78,750
1864-65	..	..	..	..	..	68,125
1865-66	..	..	..	..	..	73,120
1866-67	..	..	..	..	..	81,000*

Total .. 395,995

Average of 6 years.. 66,000 Bales.

28. The exports this season up to date, as shown in detail in the accompanying Statement (G.), amount Returns of the exports of the present season up to date. to but 35,000 bales, compared with 66,000 bales, the average exports of former years.

29. For this very marked falling off in the exports it is not very difficult to account. In this country, where there is a very large and steady consumption of cotton, the quantity available for exportation will of course depend upon the difference between the season's crop and the amount retained for home use. The cloth trade of the Central Provinces is a subject of the greatest interest, and affects the whole question of cotton exports; but the details are so voluminous and intricate, that I prefer submitting a separate Note on the subject to burdening the present report with the particulars. It will perhaps be sufficient to say that there is hardly any part of India in which the people are so much attached to native cloth, or in which the native manufactures of the finer fabrics have been so little affected by the introduction of English piece-goods, as the Nagpore country. And the export returns show that, besides the large quantity of cloth used in these Provinces, a very considerable trade is carried on with the Berars and the whole Mahratta Country. However successful the Manchester mills may have been in providing the better class of natives with that smart cloth called "Jagernathjee," of which the "koorta" or sort of cotton "frock-coat," which now constitutes the costume of all "in society," is composed, they have not yet succeeded in affecting the manufacture of the beautiful turbans, "dhotees" (loin cloths) and other

* Nearly 20,000 bales being imported Cotton.

G.

*STATEMENT showing the quantity of Cotton exported from
the Central Provinces during the Season 1867-68.*

	Bales.
Exports by Railway from the Wurdah District	
to Bombay	5,500
Carted across	6,000
Exported to Bombay by Nerbudda Valley....	12,000
Exported from Wurdah and the Nerbudda Valley to Calcutta	10,500
Sent from the Eastern District to Bengal	5,500
	<hr/>
Total.....	39,500
Deduct Imported....	3,700
	<hr/>
<u>Total Exports about..</u>	<u>35,000 Bales.</u>

[These figures have now been corrected with the assistance of the Trade Returns received after this Report was submitted.]

(Signed) II. RIVETT-CARNAC,
Cotton Commissioner for the Central Provinces and the Berars.

Dated Camp, Khangaoon, 28th June 1868.

fabrics of Nagpore and Omair, in which the better classes and the now enriched peasantry of Berar indulge; nor have they touched the manufacture of the coarse strong cloth made in the Nagpore and Chandah districts from home-spun thread,

Extensive trade in native cloth. which all the Koonbees of this part of India prefer to any imported cloth. To give an idea of this, I insert here a copy of a note on the subject, made some years ago, when I was Settlement Officer in the Chandah and Wurdah Districts, and when I had a good opportunity of observing the trade in native cloth.

Extract from a Report on the assessment of the Land Revenue of the Chimmoor Pergunnah, in the Chandah District, December 1864.

“An important article of trade in Chimmoor which finds its way to the weekly Fair, and which, strange to say,

Manufacture of coarse cloth. has not been much affected by the great rise in the price of the raw material, is the manufacture of coarse cloth, which is entirely in the hands

of the Dhers,* who spin the thread and work the looms. The cloth is coarse and strong, and is in great favour among the Koonbee cultivators of Berar, hard-working practical men, whom the comparatively flimsy, but smart-looking English-made cloth does not suit, and who still draw large supplies of this native cloth from Jamoorghotta. That the trade has not been much affected by the high prices of raw cotton, is partly accounted for by the fact that the price of the cloth, if it has not risen quite in proportion to the increase in the price of the raw material, has yet risen considerably. It is bought too, in larger quantities than ever by the prosperous Koonbees, who not only can afford in these times to pay a higher price for their cloth, but who can also afford to indulge in greater quantities of the material. The cloth business at Jamoorghotta is generally transacted on Wednesdays. The Berar people are large purchasers, and Hingunghat always furnishes several cart loads of raw cotton, from which the Dhers, who may have been successful in disposing of their cloth, supply themselves with material for the next week's work of spinning and weaving. Some idea of the trade of Jamoorghotta may be gathered from the notes I made on the spot of the number of stalls held by different classes of traders at the weekly markets, the details of which are given in Statement (H).

*Outcastes, found in large numbers in the Jungle tracts.

H.

Memo. of the number of stalls held by the different classes of Traders at the weekly market of Jamoorghotta.

List of the different classes of Traders.	No. of stalls held by each Trader.	Total of each class.
A. CLOTH.—I. Shops selling expensive turbans, dhotees, shawls, &c. of native manufacture	25	
II. Shops selling English cloth, &c.	5	
III. Koshtees, weavers of finer native cloth ..	110	
IV. Rungarees, dyers, selling stamped and dyed cloth, native	26	
V. Salewars, selling coloured cloth for women..	5	
*VI. Dhers, selling coarse cloth of their own manufacture	350	521
*(44 of these were regular traders, who came to market with their carts and large stocks, and remained for a couple of days. The remainder were of a poorer class, who brought small bundles of cloth on their backs, and whose sales were small.)		
B. IRON.—Sellers of tires for cart wheels, plough-shares, axes, &c. in large quantities	75	75
C. GRAIN.—I. Wholesale traders, 25 cart-loads	25	
II. Small shop-keepers	5	
		30
D. PROVISIONS.—I. Stalls for selling goor (molasses)...	75	
II. Do. Salt	30	
III. Do. Fish	34	
		139
E. COTTON.—I. Wholesale traders, 25 cart loads	25	
II. Sellers of cotton thread	6	
		31
F. MISCELLANEOUS.—I. Gunny bag sellers..	5	
II. Flax (sunn) sellers	4	
		9
	Carried over....	

List of the different classes of Traders.	No. of stalls held by each Trader.	Total of each class.
F.—MISCELLANEOUS—(cont.)	.	
Brought over....	9	
III. Carpenters with stores of un-worked wood for carts	15	
IV. Bamboo sellers, 7 cart-loads ..	7	
V. Basket or mat sellers	15	
VI. Opium sellers	1	
VII. Tobacco sellers.....	25	
VIII. Snuff sellers	6	
IX. Sellers of spices and condiments.	25	
X. Pân sellers	20	
XI. Oil and oil-cake sellers.....	70	
XII. Blanket sellers	16	
XIII. Brass workers	13	
XIV. Goldsmiths and silversmiths ..	14	
XV. Shroffs (money changers)	10	
XVI. Small hawkers	14	
XVII. Sellers of attar and perfumery..	10	
XVIII. Pansarees or grocers.....	65	
XIX. Vegetable sellers	160	
XX. Shoe and leather sellers	14	
XXI. Sellers of earthen pots	3	
XXII. Grass sellers	96	

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In addition to this there were some 250 head of cattle for sale at the market. The average attendance is about 8,000, and includes well-to-do merchants from Oomraotee, Woon in Berar, from the Wurdah District, and from Nagpore."

(Signed) H. RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars.

Dated Camp, Khangaon, 28th June 1868.

This Statement of the business in country cloth done in the weekly market at the otherwise insignificant
The weekly fair at village of Jamoorghotta, in the Chimmoor
Jamoorghotta.

Pergunnah, was submitted by me when I was engaged in assessing the land revenue of the Chandah District, and this it must be remembered is but one of the many places to which the peasantry flock for the cloth made by the Dhers who people the jungle villages of the old Nagpore Province. The quantity of cloth of a finer quality exported by Railway is shown in the annexed Statement (I.), and the accompanying extract from the Trade Reports show the exports of cloth of all sorts during 1866-67. It must be remembered that in these returns is not included the cloth carried across the frontier by the poorer classes who attend the village markets and the fairs in large numbers, and who take away with them a pair of *dhotees* or a turban, which is not of course registered by the trade clerks. On the whole, I believe that the annual consumption of cotton in these Provinces to be not less than 60,000 bales.

30. The effect of this very large consumption on a small crop will be readily understood, and it is easy to see that, as owing to the inclemency of the weather the area sown with cotton was smaller than usual and the produce per acre similarly affected, the balance available for export was necessarily reduced. The average area under cotton cultivation in the Central Provinces is roughly speaking 600,000 acres, and the average out-turn in a fair season would be about 80 lbs. an acre, or 120,000 bales. The population of the Central Provinces, deducting that of the Zemindaries, which are not included in this calculation, is about 8,000,000, and taking the consumption at 3 lbs. per head per annum, (which considering the number of children that go nearly naked is a fair average) the local consumption would be 60,000 bales. In addition to this consumption in the Provinces, the trade returns show that about 53,000 maunds of our cloth are exported annually, in making which at least 15,000 bales of raw cotton would be consumed. But this drain on our cotton resources is counterbalanced by an average annual import of English piece-goods representing 15,000 bales of cotton.

Now although during the season 1867-68 the area under cotton cultivation in the Central Provinces did not undergo any very considerable reduction,* still the out-turn of cotton was affected by the rain,

* The amended returns received in the office of the Secretary to the Chief Commissioner after this report was submitted show this, I have therefore corrected my estimate accordingly.

I.

Return showing the quantity of Country Cloth exported from, and European Piece Goods imported into, the Central Provinces, from 1863-64 to 1866-67.

YEARS.	Country Cloth Exported.	European Piece-Goods Imported.
	Maunds.	Maunds.
1863-64	75,362	22,591
1864-65	54,277	58,496
1865-66	55,052	29,070
1866-67	52,893	58,402

In the trade returns for 1866-67, the 52,893 maunds of native cloth is valued at Rs. 56,00,000
 " , , 58,402 " piece-goods " 66,10,000

I should think that the value of the former is under-estimated.

From the Nagpore Railway Station alone from October 1867 to April 1868 (7 months) 8,797 maunds of the fine fabrics of Nagpore were sent off by Railway, and of this quantity the Berars took 4,063 maunds, Bombay people the remainder. It may be interesting to note here that in the year 1814 the total value of the piece-goods exported from the United Kingdom to the East Indies amounted to £109,000. The Central Provinces alone now take piece-goods of six times that value. In 1832 the value of the piece-goods had amounted to £1,531,000—and the Central Provinces alone now take half of that value. The value of the piece-goods imported into India in 1867 was £53,350,000.

Similar returns for February to September 1867, received since the above was written, show that 3,844 maunds were exported from the Nagpore station during that period, of which the Berars took 3,252 maunds or 7,000 maunds in one year of a value of not less than 17,50,000 Rupees or 175,000 pounds sterling.

(Signed) H. RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars.
Dated Camp, Khangaon, 28th June 1868.

and the yield per acre must be taken at considerably less than that estimated above, or say at 60 lbs. per acre.

Now the average annual out-turn of cotton in the Central Provinces would stand thus—

	$\frac{60,000 \text{ acres} \times 80 \text{ lbs.}}{400 \text{ lbs.}} = 120,000 \text{ Bales}$
Deduct local consumption	60,000 Bales
would leave	60,000 Bales

available for export.

The reduced estimate on account of the bad weather of 1867-68 would have the following effect:—

	$\frac{60,000 \text{ acres} \times 60 \text{ lbs.}}{400 \text{ lbs.}} = 90,000 \text{ Bales}$
Deduct local consumption	60,000 Bales
Leaving	30,000 Bales

available for export.

Owing to the miserable crop, it is not unlikely that the native manufactures may have been curtailed, which would have given a few thousand more bales available for export.

There might, perhaps, have been more competition between the purchasers for the district spinners, and the agents for the Bombay firms, which might

Purchases by Native spinners at the commencement of the season. have resulted in a larger share of the Hingunghat crop being reserved for the European market, had it not been that, at the commencement of the season, trade in Bombay was very dull. Those interested in the native yarn and cloth manufactures, knowing the damage caused to the crop by the monsoon, and seeing that prices must rise, lost no time at the commencement of the season, in buying considerable stocks of cotton. The dulness of the market was favourable to the poorer class of spinners, who were able to afford to purchase a good supply of the raw material, and thus, when prices rose later in the year, and there was an inclination to purchase for the Bombay market, the cotton was not to be got in any large quantity. Taking the average produce per acre during the season to have been 60 lbs. (in a good year I would not fix it lower than 80 lbs. in the Wurdah valley), the total produce would have been 90,000 bales. It has already been shown that of these 90,000 bales about 35,000 bales were exported, and thus the balance retained for consumption in the Provinces, to be worked into cloth (portion of which is ultimately exported), or used for the many domestic

purposes to which cotton is put, would not be less than 60,000 bales. The estimate is of course quite a rough one : but I hope to check it in my next report with the assistance of investigations regarding the manufacture of native cloth.

31. Next to the great falling off in the exports the most noticeable feature in this season's returns is the

Change in the direction
of the traffic.

change in the direction of a considerable portion of the trade. Last season it appeared as if the traffic, following the line of the Great Indian Peninsula Railway, had settled down into one firm channel. This year travellers between Jubbulpore and Nagpore were surprised to meet on the Great Northern road strings of carts carrying full-pressed bales of cotton from Hingunghat to the Railway station at Jubbulpore, and these exports to the North-Western Provinces must have reminded them of the old days when all the cotton of Central India

found its way to Mirzapore. The cause of this sudden change must, I presume, be the revival of the Spinning and Weaving trade in the North Western Provinces. The Elgin Cotton mills at Cawnpore took 3,000 bales, which were pur-

chased and pressed for them at Hingunghat by Messrs. Warwick and Co. Native purchasers for the Mirzapore market also found their way at the commencement of the season as far as Oomraotee, but the amount taken by them was inconsiderable.

32. I will only mention here, in concluding my remarks on the exports, that the manufactures of cloth and yarn in the Central Provinces, which, as has been shown, affect so materially our exports of cotton, are not only very extensive, but also very delicate and valuable. At the Exhibitions of Nagpore, Jubbulpore, and Akola, it was difficult to convince visitors that the yarn shown there was of native manufacture, spun by the hand with the assistance only of the rude primitive looking spinning wheel, exhibited in the same Department. A piece of native thread* exhibited by me at Akola was of such fineness that

* The "hank" or skein of thread in question was made at Chandah. On measurement it was found to be eleven feet in length (one foot had been snipped off) and to contain 200 threads. The weight of the "hank" by the goldsmith's fine scales was $\frac{1}{2}$ of a tola or $\frac{3}{4} \times 40$ of a pound avoirdupois. There would then be $200 \times 740 \times 11$ feet, or 117 miles length in one lb. weight of such thread. In England the spun yarn is always made up into hanks, each containing 840 yards of them, and the number by which the quality of yarn is known denotes the number of these hanks that go to the pound. No. 40 is the ordinary yarn in use. It is on record that No. 400 (or about 200 miles of thread to the pound) has been spun; but at the commencement of this century No. 100 produced

I have calculated that a pound weight of this yarn would reach a distance of 117 miles. The best compliment to its excellence was paid by some gentlemen interested in the cotton trade, who, notwithstanding that the public were particularly requested not to touch the specimen, succeeded in snipping off pieces of it to carry away as curiosities !

EXPORTS FROM THE BERARS.

33. In the Berars the results have been somewhat different. I have explained that this part of the country es-

Exports from the Berars. caped the effects of the inclement weather which had so much to do with the decrease in the Central Provinces exports. Moreover, in Berar there are no great cloth manufactories such as those of Nagpore, Oonrair, Pohnee, Chandah, &c. Although at Ellichpore, Unjungaon (Soorjee), Kolapore, and other places in the Province, weaving is carried on to some extent, still the cloths are generally made of imported European yarn of which I have seen large quantities of bales in the towns in the interior. In fact the non-agricultural class, who, throughout the old Nagpore Province, spend so much of their time in spinning the native thread, do not exist in Berar, or if they do exist, the extension of cultivation and the prosperity of the country has provided them with more lucrative employ-

No considerable cotton manufacture in the Berars. ment. On the other hand, the population of Berar is, on the whole, much more well-to-do and luxurious than that of the Central

Provinces (of which a large proportion is composed of wild classes living in the jungle country) and the Berars use some quantity of cotton for other purposes besides cloth. And thus it is that the proportion of the cotton retained for local consumption in Berar is very small compared with the total crop. The cotton cultivation in the Poornah valley has been shown to amount to 968,924 acres, that in the Woon and Mekhur Districts or in the country beyond the hills to 285,628. Now taking the yield of cotton per acre at 80 lbs. would give a total out-turn for the Berars of 250,000 bales of 400 lbs. each. Now the Railway exports returns show that about 197,000 bales of cotton have already been sent down to Bombay from the Berars this season. The returns of traffic over the Sawurgam Ghat, the pass leading from Berar

by Crimpton's invention was thought an extraordinary performance even for machinery. The Chandah specimen above alluded to, of which 117 miles go to the pound, would then, according to the English standard, be about No. 244 in fineness, and this is produced by the Dhers without the help of any complicated machinery ! At Nagpore and Oonrair thread of about No. 140 is very generally used for the fine Dhotees.

along the old Karinja-Poonah road to Panwell* show that about 6,000 bales of Berar cotton left these Provinces for the Bombay Presidency during the same period, giving a total export of 203,000 bales. Perhaps about 8,000 bales of this was old cotton, part of last season's crop, held back until after the commencement of last rains; but as about the same quantity of this season's crop is supposed to be still in the Provinces, these two sums may be taken to cancel one another and need hardly be taken into account in the following calculation. Thus

Local consumption very small. 250,000 bales produced in the Berars
203,000 bales have already been exported during this season to Bombay, some 10,000 to 20,000 bales have been shown to find their way annually across the Wurdah to Hingunghat and other markets, which brings the total exports up to about 223,000 bales. The balance of 27,000 bales thus left has not, I should say, been all consumed in the Province, for I take the total out-turn this season to have been rather below 250,000 bales, the second and third pickings having been much injured by the rains of January. But the local consumption cannot be less than 10,000 bales. How well the wants of the people in the matter of cloth and yarn are supplied by the Bombay piece-goods market, the Bombay Spinning Mills, and the looms of Nagpore, the Railway returns very clearly establish.

34. The season has certainly not been such as to offer any inducement to the cultivators to keep cotton back, and on the whole, notwithstanding January's rain, it has been a remunerative and encouraging one to the Berar Koonbees. At the close of last season the market touched the lowest point that has been known since the commencement of the American war. How gloomy, compared with that of former years, the price of cotton at the commencement of the season under report appeared to the cotton growers of Berar will be easily understood by the accompanying copy of a Diagram (I.) in which the rise and fall of the price of Indian cotton in the Liverpool market (the quotations of which affect all the markets out here) are shown.

State of the cotton market during 1867 and 1868.

Owing to the heavy rains the cotton did not ripen until late, there was no activity in the English or Bombay markets in November, and the consequence was, that at the close of the year, when Khangaon and Oomraoec are generally thronged with carts loaded with cotton,

scarcely any business was doing, for the ryots finding that but few purchasers had come up from Bombay, and that there was but little inquiry for their produce, held back for better prices. For, thanks to the profits realized from cotton

Cotton held back at the commencement of the season.

* Opposite the Bombay Harbour.

in former years, they could now afford to wait a little, and the result showed that, although the delay in picking the cotton was a fatal mistake, still that the Koonbee was not wrong in delaying for a time to cart his cotton to market. As the year advanced, quotations from home were more favourable, and orders from Bombay commenced to pour into the markets. From the commencement of January* to the middle of April the price of "Fair Dhollera" cotton (the standard by which all Indian cotton is quoted) rose in the Liverpool market from $5\frac{1}{2}d.$ per pound to $11d.$ per pound, a rise of more than 100 per cent. in $2\frac{1}{2}$ months ! and as the Telegraph wire communicated the quotations of the English market without much delay to Khangaon and Oomraotee, the Koonbee who held his cotton until the month of April, secured for it double the price that his less fortunate brother, who had parted with his produce early in the season, had received.

Rise in price later in the season.

35. The accompanying Diagram (II.) which shows the exports from Berar from October 1867 to June 1868, will show how the business done in our markets followed the rise in prices above referred to.

36. The exports from the Berars for the European market during the season 1867-68 up to date have thus amounted to 207,000 bales. During the season 1866-67 the total quantity exported was 218,000, and the falling off this season is, I believe, chiefly to be accounted for by the damage done to the crop by January's rain. I have not yet succeeded in discovering any reliable returns to show the exports prior to 1867. The exports of the Central Provinces towards

Bombay during the seasons 1866-67 and 1867-68 have already been shown to be respectively 73,000 bales and 23,000 bales. If these be added to the totals of the Berar exports for the same periods, the figures for the Central Provinces and the Berars stand thus :—

	Central Provinces.	The Berars.	Total Bales.
* 1866-67.....	53,000	218,000	271,000
1867-68.....	23,500	207,000	230,500

This season's exports are, as has already been shown, below the average, which I should say was not less than 250,000 bales. When it is remembered that the total quantity of cotton exported from India annually is but $1\frac{1}{2}$ to $1\frac{1}{2}$ million bales, it will be seen how fair a share these Provinces bear in supplying Europe with this very important staple.

* The price of Oomraotee is generally $4d.$ per pound higher than Dholera, and Hingunghat $\frac{1}{2}d.$ to $\frac{1}{2}d.$ per pound higher than Oomraotee.

The average annual exports from Bombay may be taken at about 1,000,000 bales of 400 lbs. each, about one-fourth of which in a fair season is supplied by Provinces as a cotton supplying country.

in these Provinces are sufficient for four weeks' supply for all the mills Europe. The position in which these Provinces stand as a cotton supplying country will best be seen from the accompanying table:—

The average weekly consumption for the whole of Europe at present is about 73,000 bales per week, or 3,800,000 bales per annum. It has been as low as 58,000 bales per week, or 4,056,000 bales per annum. The following will give a sufficiently correct idea of the manner in which this large demand is met:—

America	about	1,500,000	Bales.
India	"	1,400,000	"
Egypt	"	250,000	"
Brazil	"	500,000	"
Other Countries	"	350,000	"
		4,000,000	Bales.

Indian supplies are made up approximately as follows:—

	Bales.
BENGAL	130,000
MADRAS	170,000
BOMBAY	1,100,000

The Bombay shipments being made up as follows:—

	Bales.
Guzerat	130,000
Dharwar and Coompta	170,000
Dholera	200,000
Khandesh	75,000
Verawul, Cutch, &c.	125,000
Kurrachee, including Punjab cotton	40,000
The Central Provinces and the Berars	250,000
The Deccan and Nizam's Country	50,000
Central India	25,000
Sundries	35,000
	<u>1,100,000</u>
Total Bales supplied by India	1,400,000

STATEMENT taken from the Circulars published in England, showing Imports of Cotton into Great Britain, Consumption and Exports of ditto to Foreign Countries, during the years 1861 to 1867.

	1861.	1862.	1863.	1864.	1865.	1866.	1867.	Average.
Bales.	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.	Bales.
East Indian	93,600	1,072,459	1,223,700	1,399,500	1,266,526	1,847,763	1,508,759	1,329,325
American	1,841,600	71,766	131,900	197,800	461,927	1,162,742	1,225,688	727,632
Other kinds	207,500	300,863	576,600	989,800	1,026,869	738,553	766,333	638,074
Total Imports into Great Britain	3,035,700	1,445,068	1,932,200	2,587,100	2,755,321	3,749,058	3,500,771	2,715,031
Total Exports from Great Britain	677,220	564,900	600,950	732,280	890,830	1,136,565	1,015,040	811,112
Consumption in Great Britain	2,358,460	850,168	1,271,250	1,854,820	1,864,491	2,612,493	2,485,731	1,903,919

Average consumption in the whole of Europe about 3,000,000 per annum, or 73,000 bales per week.
Thus the Central Provinces and the Berars supply about one-fifth of the cotton exported from Indin, or about enough for four weeks' consumption of Europe.

(Signed) H. RIVETT-CARNAC,
Cotton Commissioner for the Central Provinces and the Berars.

Dated Camp, Khangaon, 28th June 1868.

SECTION IV.

MEASURES ADOPTED TO IMPROVE THE CULTIVATION OF COTTON.

A.—BY THE IMPROVEMENT OF THE INDIGENOUS PLANT.

37. My remarks, as yet, have been chiefly confined to the prospects of the crops during the year under report. It

Measures adopted for improving the cultivation of cotton and for assisting the trade.

will now be necessary to refer to the endeavours that have been made during that period to smooth the way for the advance of the trade in these Provinces, and the measures

that have been taken to improve the cultivation of the plant, and thereby, by securing a superior staple, the market for which would depend on no precarious demand, to place the trade on a firmer basis than that on which it has hitherto rested.

38. In the instructions received by me from the Secretary to Chief Commissioner it was laid down that the primary object of my appointment was "the introduction of foreign staples and the improvement of the indigenous plant," and it was also intimated that "it would be my duty to watch over all affairs relating to cotton, and to further, so far as might be legitimately possible, all interests connected therewith." It will be convenient to consider these two important branches of my duties in the order above given, and to mention first the attempts that have been made during the past year to improve the cultivation of the cotton plant.

39. It must here be noticed, that, prior to the appointment of a Cotton Commissioner, these important subjects

Steps taken in this direction before the appointment of a Cotton Commissioner.

Visit of Dr. Forbes.

had received much attention from the Administration of the Central Provinces. During the season of 1866-67, the Wurdah District had the advantage of a visit from Dr. Forbes, the

Cotton Commissioner of the Bombay Presidency, who, besides giving valuable advice regarding the measures required for assisting the trade, which will be referred to in a later paragraph, made certain specific recommendations for the improvement of cotton cultivation in the Wurdah valley. Shortly after Dr. Forbes'

Appointment of a Superintendent of Cotton Affairs.

visit, a "Superintendent of Cotton Affairs" was appointed to the Wurdah District, and Dr. Cullen, the gentleman who first held that office, besides devoting much attention to the improved cultivation of the cotton plant, was able, with the assistance of the Deputy Commissioner, to carry out the reforms which Dr. Forbes had so usefully advocated for the convenience and relief of the trade. By Mr. Jones, C.S., the Deputy Commissioner of the Wurdah District, who on Dr. Cullen's departure to England took charge of the Superintendent's Office in addition to his duties as head of the District, the interests of all affairs relating to cotton were most carefully watched and advanced. These subjects received indeed so much attention in all the districts of the Central Provinces, that the Cotton Commissioner on his appointment found that the wind had been nearly completely taken out of his sails, and it was not possible for him to do much more than try and keep things on the same footing on which they had been placed by former careful arrangements.

40. When I first joined the appointment, the cotton harvest was nearly ripe. Even had it been deemed advisable to do so, no experiments with foreign cotton, or no attempt to introduce exotic seed on a large scale could then have been made. The importance of the question, which was then being generally discussed, as to whether more good could not be effected by the improvement of the indigenous plant, than by the introduction of exotic seed, soon presented itself to my attention, and the result of my inquiries on the subject will be found described in another part of this report. I found too that the experiments with exotic seed, so far as they had gone, had not been generally successful; and I soon began to realize more fully than before the excellence of the comparatively neglected indigenous plant of Central India. The circumstance of the exotic seed not having proved a decided success, did not appear to be a reason for abandoning experiments, but, on the contrary, seemed rather to indicate the importance of continuing the trials with the greatest care, so as to ascertain definitely whether the climate and soil of Central India were suited to the plant. But it was evident that there must be some considerable delay before this question could be authoritatively decided, and before it could be determined whether experiments with exotic seed should be abandoned as a complete failure, or whether the foreign cotton should altogether supersede the indigenous plant.

Measures adopted for the improvement of the indigenous plant.

Matters as I found them stood thus: no case had been made out for rooting up the indigenous cotton. Further experiments with exotic seed were undoubtedly

necessary. These experiments could not be undertaken until the next season, and even then they might not be conclusive. In the meantime there could be no doubt that the indigenous cotton was tolerably good, and, moreover, that it was susceptible of very considerable improvement. Whilst these experiments with exotic cotton received the care their importance demanded, my attention was also given to the improvement of the indigenous plant then just ripening.

41. A brief summary of the measures adopted to that end during the year under report will now be given. In

Improvement of cotton by purity of seed. October 1866, the valuable paper by Major Trevor Clarke, on the "*Improvement of Cotton by the selection of seed*" was, through the exertions of the Cotton Supply Association, by whom the pamphlet was printed, and widely circulated, brought to prominent notice. In that paper Major Trevor Clarke says:—

"I must now turn your attention to a fresh subject, already, however, alluded to in my former letters, namely, the use of pure seed, to be effected by the rigid isolation of sorts. Next to a constant supply from any indicated source, the manufacturer requires a constant quality of staple. From accounts I have received from credible eye-witnesses, the mixture of sorts in a cotton field, especially in the West Indies, is inconceivable, the crop in some instances looking like a flower garden with different sorts, sizes, and colours. In one case my informant described the not unfrequent appearance of a red-blossomed sort, evidently the Indian G. Arboreum, in his fields.

"This is a work of a native labourer who is either incapable or unwilling to see the difference between right and wrong, at any rate where his own interests are not concerned. His delight seems to be in reversing, confusing, or nullifying especial orders the moment the master's eye is off, and the mixture of seed is generally his preliminary operation. In my own experience I rarely received unmixed samples, and wrongly-named sorts are continually sent home, although probably in good faith, as far as concerns the sender.

"The one and only remedy for this will be found in English skill, science, and energy, strongly exerted in Major Trevor Clarke's this one direction. Experimental farms at the recommendations thereon. expense of, or encouraged by, Government, are nothing new; for a century or two of these have been carried on in spite of the perversity of man, as well as that of the elements, and have borne their fruit.

" My modification, however, of the system, would be this: let such establishments be entirely devoted to seed farming, the sole effort being restricted to the production of pure seed in the country where it is destined to be grown in future. In this country no grower of seed, either for agricultural or gardening purposes, would now obtain a sale for his produce were he to supply his customers with mixed and inferior seeds. In the establishments of such persons the master himself goes through his crops several times a year for the purpose of destroying every plant which proves inferior, untrue to sort. This weeding process is technically and expressively called 'rogueing' the crop; and is absolutely necessary to ensure purity and high quality. At the same time improvement by special selection is carried on, single plants showing high qualities are picked out for propagation, and the produce of these submitted even more rigidly to the same treatment."*

My attention had been previously drawn to this subject by a pamphlet written by Colonel Showers, Agent to the Governor General in Central India, in which the importance of improving the indigenous plant is very forcibly urged, and the same cause was advocated by several gentlemen whom I met on my visit to Bombay, and by Mr. Shaw, late of the Bombay Civil Service, whose exertions in improving the cotton of Dharwar are so well known. Moreover, His Excellency the Governor of Bombay, who has evinced a great interest in the improvement of our cotton trade, permitted me to be informed of the steps that were being taken under his orders in the Bombay Presidency to grow cotton on the pedigree system. This and other measures connected with the improvement of the indigenous plant had not escaped the notice of Mr. Jones, Civil Service, to whose exertions in improving the cotton of the Wurdah District, allusion has already been made. But as it appeared desirable that the subject should be much more generally known, no time was lost in impressing upon all officers in whose districts cotton was extensively cultivated, the importance of selecting the seed for the next season's crop on the *pedigree* system. The plan advocated will best be understood by the following extract from a letter addressed to the Secretary to the Chief Commissioner on the subject in October 1866. I then wrote:—

• Many gentlemen with whom I have consulted in Bombay, have impressed on me that without introducing new seed, which must be a work of time, much may be done at once to improve the cultivation of cotton by carefully selecting the seed grown in our districts. Under

* Major Trevor Clarke's *Improvement of Cotton by purity of seed*, page 3. Published by the Cotton Supply Association, Manchester, September 1866.

the present system the cultivators seldom trouble themselves when picking the cotton, to choose and reserve the best seed for the next season's sowings. Although in one part of a field the plants may be fine and strong with large 'bolls' of cotton, containing healthy seed, and whilst in another part, owing perhaps to inferiority of soil, the plants are poor and sickly, and the seed proportionately bad, still the 'kupas' (seed cotton) when picked, is invariably massed together, and no attempt is made to keep the two sorts separate. After the cotton has passed through the gin, it is impossible, I understand, to distinguish the good seed from the bad, the size of the seed being no criterion of the superiority of its quality, as large seeds are often but the bloated produce of some small unhealthy plant. The good and bad seed being thus mixed together, much of what would be really valuable for the next sowings goes to the cattle, and a large proportion of what is inferior seed finds its way back to the fields. I would, therefore, suggest that during the ensuing season the landholders be recommended to take particular care in selecting the best seed for next year's crop. For this purpose a certain number of the finest and healthiest plants bearing the largest 'bolls' should be selected, and the 'kupas' (seed cotton) picked from those plants should be set apart, and the seed obtained from the selected 'kupas' should be reserved for the next season's sowings. A little care in selecting cotton seed would, I am convinced, do much to improve our cotton cultivation, and if some of the landholders could be induced (as I hope hereafter to be able to induce them to do) to raise cotton for seed on carefully tended garden lands, a still greater improvement might be secured. Perhaps District Officers might be able to assist by planting carefully selected seeds in the rich fields which are sometimes attached to the public gardens."

42. This plan was duly sanctioned and carried into effect during the early part of 1867. Several landholders, old friends of mine, in the Wurdah District, selected quantities of fine "bolls" of cotton for me, and with the seed thus procured, some of the seed gardens, which were afterwards established, were supplied. On my tours through the district no opportunity was lost of impressing upon the cultivators the importance of selecting their seed, and many of them promised to do so, and some of them really did, I believe, follow my advice. They admitted that with jowaree they always selected the best "bhutzs" or heads of the jowaree harvest, for seed for the next year's sowings, and that, therefore, what was urged about cotton might perhaps be correct, but said they, "it is not the custom", and I am afraid that with many the custom of their forefathers carried the day against precept.

43. Attention was also given to the interchange of seed. With the assistance of Mr. Malcolm Low, the Deputy Commissioner of Nagpore, a large quantity of Hingunghat seed was introduced into the

Interchange of seed.

In the Nagpore District.

neighbouring villages of the Nagpore District. There is probably not very much difference between the plants of the two districts, but the import of fresh seed did good, and had it not been for the very heavy rain of 1867, the result would doubtless have been more marked. In the same manner Captain Lucie Smith was good enough to arrange for

upwards of 1,200 maunds of cotton seed being imported into the Chandah District from Edulabad,

In Chandah. bad, on the right bank of the Wurdah, in the territory of His Highness the Nizam, in which tract some of the very finest cotton that finds its way to the Hingunghat market is grown; and although the inclement season affected this experiment in the same manner that it damaged every crop, still the presence of this new seed in the district will not be without its fruits.

44. Moreover in the Wurdah valley an interchange of seed is often effected by the people themselves, and this is notably the case in the Berars, where, in a good season, the people living in the south will cross the Poornah to purchase seed for the next season's sowings. The system which prevails in the Wurdah valley of cleaning the seed cotton also helps to ensure a continual change of seed. The *kupas*, or cotton in the seed, is carried by the purchaser to his yard in some central

village, where it is cleaned *en masse*. From the cleaning establishments, or *barces* as they are called, the cultivator purchases his seed when sowing-time comes round, and as the seed from the cotton of some 15 or 20 villages is massed together in one place, the chances are against the purchaser taking away with him the produce of his own village.

Establishment of seed gardens.

45. Seed gardens on the principle already described were established in the following districts:—

Wurdah.

Chandah.	
Nagpore.	
Nimar.	
Dumoh.	

Saugor.	
Raeapore.	
Oomraotee.	
Akola.	

The seed was sown in a selected field, and was watched with care, the system of "rogueing" the crop, to which Major Trevor Clarke attaches so much importance, being duly attended to. The seed gardens, as a rule, suffered very severely from the heavy rains. In the Wurdah District, the seed was selected by me from several of the very best fields, and of this "pedigree seed" which is to be very carefully tended this season, I hope to be able to give a favourable account in my next annual report. I am convinced that by the careful selection and careful cultivation of selected seed, much may be done to improve the character of the indigenous cotton of this part of India, and time may perhaps prove the correctness of this view.

46. These measures for the improvement of the cotton plant were

Excellence of the Hingunghat cotton, and opinions of various authorities thereon.

inculcated on all who undertook experiments in the districts, but in tracts where an inferior cotton was grown, it appeared that much benefit might arise from the introduction of a superior class of indigenous seed, and this brings me to the steps taken to extend the

cultivation of the Hingunghat plant. The merits of this cotton are already pretty generally known by the success that has attended Mr. Lionel Ashburner's exertions to introduce it into Khandesh, and a further allusion to the high character borne by this variety will be found in subsequent paragraphs of this report.

47. The following evidence regarding the excellent quality of this indigenous cotton is adduced here to explain the reasons of the efforts that were made during 1867, to secure its extension in these Provinces.

His Honor Sir Donald Macleod, who, I think I may venture to say has always taken great interest in the improvement of cotton cultivation in India, was pleased to make the following remarks on the Hingunghat plant in a letter addressed by the Secretary to the Government of the Punjab, to the Financial Commissioner, Punjab, in 1866.:-

"I am directed to forward, for the information of the Financial Commissioner, copy of a letter No. 4112, dated

Opinion of His Honor Sir Donald Macleod.

22nd September last, from the Cotton Commissioner, Central Provinces and the Berars, and its enclosure in original, regarding Hingunghat

cotton, and to request that the Financial Commissioner will put himself in direct communication on the subject with Mr. Rivett-Carnac. There can, the Honorable the Lieutenant Governor remarks, be no doubt whatever of the superiority of the Hingunghat cotton. So long ago as 1842, Mr. Terry, by far the most efficient of the cotton planters

introduced by Government, assured His Honor at Kalpee, that if this cotton received fair treatment, it would prove as suitable for the European market as any American variety. He stated that it contained three chanters in the capsule, the common country cotton of Upper India containing four, so that he regarded it as a different species."

Later I received from gentlemen of great experience in England the following valuable testimony to the character of the Hingunghat cotton. Mr. Bazley, M.P., the Vice-President of the Cotton Supply Association, wrote:—

"I approve of your classification of Indian cottons, and from my own former observations can confirm your estimate of Hingunghat cotton being equal to middling New Orleans."

From the Cotton Supply Association, who have steadily evinced the greatest interest on the subject of improved cotton cultivation, and to whom I am indebted for much valuable information and assistance, I received the following reply to some inquiries addressed to them on the subject:—

"The measures which you have taken to promote the more extensive use of Hingunghat seed have had the special attention of our Executive Committee, as well as your request to be informed of their views as to the character of this description of cotton and the expediency of encouraging its cultivation. They are very decidedly of opinion that the excellence of Hingunghat cotton and the high estimation in which it is held by our manufacturers fully warrant the conclusions that you have come to respecting it, that it is important to encourage its cultivation. It is doubtless, as you state, capable of improvement, and that should be promoted in every possible way; but it has been steadily growing in favour, and we think that further efforts should be used to make it worthy of still higher estimation."

Mr. Samuel Smith, whose notes on the Cotton Trade of Bombay are well known, was good enough to favour me with the following opinion regarding the advisability of extending the cultivation of this cotton:—

"I am glad to hear of the extension of the Hingunghat seed, it is the best Native variety, I think, and good Of Mr. Samuel Smith. Hingunghat cotton is almost equal to American; it will do pretty well for at least three-fourths of the work the American cotton does. The Broach cotton cleaned by the Macarthy gin is also very good; it was considered this

season the finest cotton that came from India, but the Hingunghat has heretofore commanded the preference. Broach cotton appears to vary more with the season than Hingunghat—some years the staple is excellent, in others it is poor. I don't think very much of the American Seed Dharwar cotton ; the staple is much cut, and our spinners don't like it. I think it will answer India best to stick to the good indigenous kind, and prepare those with the utmost possible care."

The Honorary Agents of the Cotton Supply Association in Bombay, writing to me regarding this cotton in 1867, said :—

Of the Agents Cotton Supply Association, Bombay.

"The Hingunghat cotton is particularly good, and the way that it is sent down to market is a credit to both the grower and the dealer."

48. In the Chutteesgurh country, in which an indifferent class of cotton has hitherto been grown, it was determined to introduce the Hingunghat variety. With this view in May 1867, 500 maunds of seed were supplied to Captain Twyford, the

Deputy Commissioner. The season in Chutteesgurh, as already noticed, was more favourable than in any other part of the Central Provinces ; and in the month of October last, Captain Twyford, writing of the success of the seed, said: "The Hingunghat seed you forwarded to me has turned out most successfully, and quite surprised the cultivators by the size of the plant ; I have little doubt it alone will be grown in a few years."

The 500 maunds thus sown in Chutteesgurh must have produced about 10,000 maunds of superior seed, which will help to regenerate the cotton cultivation in that important Division.

49. Some 1,000 maunds of this seed were sent to Jubbulpore, with the view of improving the cotton grown

Seed sent to Jubbulpore. to the north of the Sautpooras, which is short in staple and of a rough, harsh description, very inferior to "*Hingunghat*." Unfortunately some of the consignment was caught in the rain, and did not arrive until late in the season, and the 70 inches of rain in the Nerbudda valley was quite enough to affect any experiments. Mr. Jones, C. S., has however determined to give the cotton of Hingunghat, the merits of which are so well known to him, another trial ; and as shown in the statement at paragraph 61, 100 maunds of this seed and 5 maunds of acclimatised Dharwar New Orleans seed have been furnished to him this year.

50. The Nimar people are neighbours of the Khandesh peasantry, among whom Mr. Ashburner's successful endeavours to improve

the cultivation of the inferior cotton grown in his district created such a sensation. Aware of the results in Khandesh, the Nimar cultivators expressed their readiness to try the Hingunhat seed. Accordingly 1,435 maunds were supplied to that District. Mr. Forsyth, the Settlement Officer of Nimar, who has from the first taken great interest in the subject, thus alludes to the Hingunhat seed in a Memorandum he was good enough to send me in November last :—

“Cotton sown in Boorhanpore Tehseel, Nimar District.

Season.	Acres sown.		Crop lost, Acres.		Balance, Acres.		Probable yield of clean Cotton in Maunds of 52 lbs.		
	Hingun- ghat.	Indige- nous mauds.	Hingun- ghat.	Indige- nous mauds.	Hingun- ghat.	Indige- nous mauds.	Hingun- ghat.	Indige- nous mauds.	Total.
1866	200	5,631	..	..	200	5,631	125	2,815	2,940
1867	5,808	1,063	1,935	864	3,873	660	2,420	307	2,727
Increase or decrease in 1867.	+5608	-4568	+1935	+364	+3073	-4962	+2295	-2508	-213

“ It thus appears that about $11\frac{1}{2}$ per cent. more cotton was sown this year than last, but owing to loss of crop from excess of rain, the breadth that will yield the staple is much the same. But 85 per cent. of the whole crop is the superior Hingunhat variety, which was only tried as an experiment last year.

“ Although the season was not on the whole very favourable for cotton, especially for that portion of the crop which was sown with the first rains, the people are quite satisfied of the great gain they have made in replacing the miserable Nimar staple—useful only to adulterate better qualities—by the new seed, and I believe that with little trouble the whole district might be sown with the Hingunhat variety next season.”

51. Of the capabilities of the southern part of Nimar to grow good cotton, the following evidence of Mr. Experiments in Nimar. Vix, of the firm of Messrs. Jules Siegfried and Co., who purchase largely for the foreign markets, supplies abundant proof:—

“ In reply to your inquiries, I beg to state that I purchased in Bombay, last February, about 100 bales of cotton which came from Boorhanpore. This cotton was shipped overland to Marseilles and

Mr. Vix's opinion of
Nimar-Hingunhat cotton.

was sold in France at about 147 francs per 50 kilogrammes, equal to about 12½d. per lb. Fair new Hingunghat would have fetched at that time scarcely a better price.

“The manufacturer who purchased this cotton was so well satisfied with its quality, that he sent out an order for about 500 bales more of the same description.

“I consider that cotton similar to these 100 bales will always command in the European markets about 3d. more than the cotton from Hoshungabad, or about Rs. 90 to Rs. 100 per Bombay candy.

“If the natives of that part of India could be induced to extend the cultivation of this kind of cotton, I believe that it would result in a great advantage to the cotton trade.

“From my own experience of the spinning of cotton, I consider that a quality of cotton similar to the 100 bales abovementioned, say from fair to good fair is equal to middling Upland, and not much inferior to middling New Orleans. During my last stay in Europe, I saw several of my friends in the manufacturing districts in France, to get their opinion regarding Indian cotton. They are all unanimous that Hingunghat is the very best quality of India, and some of them declared it to be equal to New Orleans cotton. When I am at liberty to choose in Bombay, to my judgment, the best quality of cotton for manufacturers, I always give the preference to Hingunghat. If none can be obtained of that description, I choose Oomraotee, which is generally preferred in France to Dharwar saw-ginned. With the new system of cleaning cotton in the mills in Europe, I do not consider Dharwar saw-ginned more advantageous than a good kind of Oomraotee.”

52. The above letter speaks also to the quality of the Oomraotee cotton. The following letter from Messrs. Booth & Co. of Khangaon, who have had great experience of Indian and American cotton, is here inserted, as showing what excellent cotton can be grown in Berar:—

“Referring to our late conversation with you, we have the pleasure to send you herewith three samples of cotton, which we consider to represent the best description of Oomraotee that has come to our market this season.

Opinion of Messrs. Booth
and Co. on the Berar
Cotton.

“Sample No. 1 is from Assillgaum near Julgaum.

“Sample No. 2 from Boorkhaid near Mulkapore.

“Sample No. 3 from Dewelgaum near Sirlab.

"There is a marked difference between cotton grown on the tracts of land skirting the hills and along the fertile banks of the Poornah river.

"The first description is, as a rule, firmer, stronger, and more even in staple than cotton grown near the Poornah, which is generally better colour, but stout and coarse-stapled. Still some fine qualities can be produced in the vicinity of the Poornah, as the above samples will show; but as a general fact we are inclined to believe that the higher the cotton is grown on the slope between the ghats and the river the better. The Cotton sample No. 1 is from Assillgaum near Julgaum. We would give it the following classification:—

"Good, good colour, jurree leaf, superior in staple.

"Sample No. 2, from Boorkhaid near Mulkapore, we would class as follows:—

"Good, good colour, jurree leaf, good staple.

"Sample No. 3, from Dewelgaum, we class as fully good, fair to good, rather dullish in colour, fair staple.

"Judging from the samples under review, we cannot help coming to the conclusion that our district possesses already the means of producing cotton at any time equal to Middling Orleans.

"If such cotton as exhibited in the above three samples can be produced by the ryot, it speaks favourably for the system of assisting the improvement of the indigenous kind. Had it not been for the untimely rain in January and February last, we think this year's crop would have turned out the finest ever exported from this district, and it is quite apparent that great improvement has taken place throughout the country. We do not by any means advocate the introduction of foreign seed. The ryots and ourselves are perfectly satisfied with the seed of the district, and we feel convinced that if but a better system of preparing cotton for the market be adopted, we would see a vast improvement. We are glad to notice that you are about to introduce nursery gardens for the purpose of improving the seed of this district. This measure we consider is a step in the right direction. We have all along held that the forced system of introducing foreign seed is wrong in principle, and we are still of the same opinion. Pedigree seed is what we require, and to show the ryot that we are in earnest in what we are doing in trying to improve the cultivation of cotton, we must not only show what can be done by a careful system of planting, but be also in a position to distribute, and if possible, *free of all cost*, the same description of seed to the ryot."

53. Although, as the above extract will show, the quality of the

Berar cotton is excellent, still it was thought that benefit might result from the introduction of Hingunhat seed into that Province.

The Hingunhat plant and the Buunee cotton of Berar are most probably the same variety, though the former, from the physical advantages of the land in which it is grown, can generally claim some superiority over its neighbour. The interchange of seed was known to be attended with advantage; and it was therefore hoped that good

results might follow the importation of the

Introduction of Hingunhat seed into the Berars.

Hingunhat seed into the Berars. Six hundred maunds were accordingly distributed in the Oomraotee district, 800 maunds were sent to

Akola, and I used every endeavour during the sowing season to persuade the people to give the new seed a fair trial.

54. In the Wurdah District or in Chandah, where, from the intimate terms on which a Settlement Officer must be with the people, I was personally known to every landholder, I should not have had so much trouble in persuading them, that, in offering them the new seed, the only object was to try and improve the produce of their lands, and to secure for them the stability of that trade which had already yielded such rich harvests. But to the Berarees I was quite a stranger, and

in their eyes there was something mysterious about my appointment, which filled them with suspicion and distrust. A Deputy Commissioner to collect the revenue from them, and

Police officers to hunt out and catch the wicked, they could easily understand. These were simply the officers of the "*Mogalaie*" government under different names; and all had become pretty well accustomed too to the officers of the Public Works Department, who laid out roads far away from their villages, and built the remarkable structures at the head-quarters of each Tehseel, where fabulous accumulations of the Government revenue were supposed to be locked up, and over which the Police detachment kept guard. But a Cotton Commissioner, who came about wanting them to take cotton seed, and who

said that his duty was to try and get them to improve their cotton,—this was beyond them altogether, and on my first arrival in Berar, I found that the people regarded my advent with some little anxiety and apprehension.* On inquiry, the reason of this soon came out. A

Suspicion with which the appointment of Cotton Commissioner was regarded.

* The disinclination at first evinced by the people to accept the cotton seed is hardly to be wondered at. They doubtless feared that some arrangements were on foot to deprive them of the profits of their lands, and they regarded the seed in the light

landholder of the Wurdah district, whom I met on the railway one day on his return from paying a visit to some relations in Berar, admitted

of a "*Queen's Shilling*," which was to enlist them in a cause of the true objects of which they had grave suspicions. The great rise and then the sudden fall in the price of cotton, and the constant fluctuations in the market, by which the cultivator, in even the most remote of the cotton-growing villages is affected, has led some of the less intelligent to regard cotton not only with distrust, but with a certain degree of awe. In the more distant parts of the cotton-growing tracts of these Provinces, the people have often begged me to explain how it was that Ramjee, who sold his cotton yesterday, got but little more than half of what Myputtee received for the same quantity only a month before? And they not unnaturally find some difficulty in realizing the present state of the trade, and the fact that, by means of the Electric Telegraph, the thrubbings of the pulse of the Home markets communicate themselves instantly to Hingunghat and other trade centres throughout the country. If the cultivators themselves are asked to account for the sudden changes, some of the most amusing reasons are occasionally adduced. As for the falls in price, and the consequent loss, the Koonbee peasant generally attributes this in a philosophical manner to "luck." Many have a vague notion of some war (between the Russians and English of course) which has had something to do with prices, but the money lenders for so long threatened the people with the sudden close of a war, and a consequent fall in the price of cotton, that many of the Koonbees still look upon the story as a *ruse* to keep down the rate at which the "laonees" or advances on the growing cotton are made. If when the prices rise the Koonbee cultivator is asked the reason of the sudden improvement, he is generally complimentary enough (for he is in a good humour) and will most probably attribute the improvement to the seasonable consideration and kindness of a paternal Government! Sometimes the causes suggested are somewhat less wanting in originality. The best answer I can remember was given by a cultivator in the Chaudah District. The subject was being discussed round the camp fire, and when more than half the audience had agreed, that a recent temporary rise in the market was undoubtedly to be credited to the kindness of Government in general, and to the Cotton Commissioner in particular, the turn came for a Koonbee, who had ridden on the railway, and had seen the Nagpore Exhibition, and who was consequently rather an authority in the village, to give his answer. He suggested, with an air of assumed deference, that, if he was not misinformed, the Shahzada (heir apparent) had recently been married in England, and that, of course, according to custom, the Queen had given every one in "Walayat" (England) new clothes; and hence the sudden enormous consumption of cotton there, and consequent rise in prices! It of course suggests itself as most natural to natives that, on the occasion of a marriage, an immense distribution of rich clothes should take place, for in this country all the presents given and received on both sides at a wedding are in the shape of cotton cloths "dhotees," "saries," and "turbans," which take the place of the many useful articles and pretty conceits of which the wedding presents at Home are composed. My friend's suggestion was afterwards traced to a complication of ideas evolved from the contemplation of Mr. Jensen's portraits of the Prince and Princess of Wales, which were the wonder of the admiring Koonbees at the Nagpore Exhibition, and which were duly explained to them to be the newly married pair, the son and daughter of their Queen, and the study of what may be called a "political" pocket-handkerchief (of which thousands came to India in 1865) containing the portraits of the Prince and Princess with appropriate designs, and which had been given by me to the Koonbee's small son in the morning, as a reward for having distinguished himself at the examination of the village school.

Since writing the above, I have read an article which confirms the idea expressed

to me, that, on both banks of the Wurdah, the cultivators did not quite know what to make of the new appointment of a Cotton Commissioner. On being pressed he said, "no, they did not think (at least the people of the Wurdah district did not) that the Cotton Commissioner would attempt to raise their revenue, for, had not the Chief Commissioner himself assured them all in Durbar that for thirty years the demand would remain unaltered ? and then if the revenue *was* to be raised, that could be done by the Settlement Officer. But was there not a Government Commissioner for Opium somewhere in Hindoostan ? and perhaps now that cotton had become of such importance, the

"Sircar" (Government) might intend to make a

Causes of this.

Government monopoly of cotton also?" It was quite evident that this idea had got about and

had made a considerable circuit, and although my friend assured me *he* was a great deal too sensible, &c. to believe such a story, and that *he* knew too well all that had been done in Wurdah by the Superintendents of Cotton Affairs (Messrs. Jones and Cullen before alluded to) to have any doubt on the subject, still I could see that, in his heart, he did not believe that such action on the part of Government was altogether impossible. After this, I took the earliest opportunity of going among the people in the Wurdah district, where I was well known, and by explaining to them my duties, and assuring them that the only return from my appointment that Government expected, was the extension of the trade, and the increased prosperity of the people which would result therefrom, and the consequent digging of wells, the planting of trees and gardens, and the breaking up of lands now lying waste, which it was every one's desire to see,—I succeeded in laying away any uncertainty that may have existed. It was obvious, however, that among the Berarees who did not know me, my task would not be so easy, and it appeared necessary that I should go to them with some

Measures taken to counteract the feeling. introduction from those in whom they had confidence. I therefore selected from among my many friends in the Wurdah district five landholders, who consented to accompany me on my tour through the

above, that natives regard with distrust any attempt to induce them to grow foreign plants. The *Times of India* mentions that an officer recently sent a present of some tea and some tea plants to an independent Native Chief on the North-West Frontier. The Chief accepted the tea and returned the plants with an intimation "that they were returned in consonance with the spirit of a tradition that plants of foreign countries should never be planted in that country, lest when they had thriven and leaved and flowered, the people of the country they had come from should themselves come to demand their produce, and so disturb the peace of the well-conducted and orderly community over which he presided." Doubtless some of the Koonbees thought that when the cotton ripened, both cotton and land might be taken from them.

Berars. These were all men who knew me well, and one way or another they had all reason to be well disposed towards me on account of services rendered to them during the settlement of the land revenue. For one I had successfully patched up a quarrel of long standing with his brethren. Another had recovered in my Court an estate from which, in by-gone days, he had been unfairly ousted, and the others had not forgotten some trifling attentions paid to them during my tours and had had squabbles of more or less importance settled by me. I could depend on all of them to give me a good character to the peasantry of the Berars, among whom I was now to go, and, as the result proved, they were to me most faithful and valuable allies.

55. When we arrived by railway at my camp in the extreme west of Berar, the operations of my Wurdah auxiliaries were carried on something after this fashion:—They generally went one march ahead of

Tour of Wurdah land-holders in the Berars. me. The fact of their being strangers, land-holders from the other side of the Wurdah, immediately secured for them a hospitable reception among the cultivators of Berar. At the

first stage one of the Wurdah men, a Deshmookh on his own side of the river, was able with the assistance of the elaborate genealogical tree (in which all Deshmookhs glory) and which he had brought with him, to trace a relationship through many generations back, between himself and the Deshmookh of the village at which they were encamped. There can be no doubt that the peasantry of the Wurdah district and of the Berars are sprung from the same stock, and that, as Berar became too crowded for them, the more enterprising Koonbees migrated across the Wurdah and broke up the land there. With the lengthy road and the busy seasons the people of either province had seldom had opportunities of seeing much of one another; but now the railway had helped to bring together men of the same original stock, whose families had been separated for upwards of a couple of hundred years and by as many hundred miles of difficult country. And the Wurdah deputation, who possessed all the advantage of being a novelty, soon became very popular; and as one Deshmookh is always more or less related to every other Deshmookh, the Wurdah man who had established his pedigree was claimed as a relation and feted by every Deshmookh within whose reach he passed. Nor were the others less happy in discovering relations and friends. The Pullasgaon Deshpandia * of the Wurdah District was

* *Deshmookh*, "the spokesman of the District," from *desh*, a country, and *mookh*, the mouth. He holds the same position in the "*Pergunnah*" (the District or circle of villages) that the Patel, or head man, does in the village. *Deshpandia* means District Accountant, the Deshpandia being to the Pergunnah what the *Pandit*, or village accountant, is to the village. Their power is now of the past.

equally successful in hitting upon a relation in the Deshpandia of Ballarpore, and ultimately extending that relationship through all the Deshpandias of West Berar. As for the others, if they did not meet any blood relations, the mere fact of their being Koonbee Patels from the "Jungles," as the Berarees are polite enough to term all the country beyond the Wurdah, was quite enough to secure for them an enthusiastic reception. These men promised (and I really believe they did for me their best) to undeceive the Berar people regarding my duties and intentions. Certainly, wherever my deputation went, I found the people less unwilling to come near me, and less shy to accept the Hingunghat seed, for which a fair trial was desired. The account the Wurdah men gave me of their exertions was to this effect:—they assured the Berarees that they had known me long, and that it was not likely I would attempt to deceive them, or do them or any one else, a bad turn; that, as regarded the Cotton Commissioner, why, what he was trying to do was only what had been going on for ever so long with some success on their own side of the river. As for a Government

monopoly, there was no fear of *that*. There
Assistance rendered me had been no attempt at such a thing in Wur-
by Wurdah landholders. dah, and why should there be in Berar?

And lastly, in regard to the cotton seed, they, the Berarees, might be altogether without fear on *that* score too: it was no "*Walayutee*" (foreign) kind that would decline to grow up, or, when it did grow up, would bring with it insects and blight, and all sorts of horrors, but it was the best of their own celebrated Hingunghat seed (of which the Khandesh people thought so much)—the seed of their own fields, which the Saheb, in his anxiety to help his friends in Berar, had desired them to choose and collect for him, and which they, regarding the Berarees as their brethren, had most willingly given, in the hope of securing for their brothers better crops and large profits such as the Khandesh people had reaped. And now here they were themselves; they had come all the way from the other side of the Wurdah to bid their friends here have no fear, and to guarantee the seed and the Saheb's good intentions. This was certainly the line taken by my Wurdah friends, when in the evening they assembled with the villagers at my tents, and I have no reason to doubt that behind my back they held forth in the same strain. But, be this as it may, I found that, thanks to their presence, my intercourse with the Berarees was much more easy, and free from constraint, than before; and I shall always attribute to my successful tour with the Wurdah Patels, the readiness and good nature with which the Koonbees, whose acquaintance I then made, have since come forward to carry out my

wishes, and the confidence they have generally shown in me when I have had occasion to require their assistance.

56. In regard to the results of the Hingunghat seed in the Berars, I regret that I am unable to speak to its general success, and I think I see now, with my more intimate knowledge of the country, what I did not quite realize before, that, owing to the physical peculiarities of the Berars, good reasons may exist for this seed proving a success in some localities, and yet not answering in other parts of the Province. And this rather confirms the view I have already expressed of the importance of trying to improve, by seed gardens, and other measures, the indigenous produce of each tract, the suitability of which to the

Hingunghat seed not generally successful in the Berars.

soil and climate has been established by long years of local experience. In some parts, especially in the east of the Oomraotee District, where the soil assimilates to that of the Hingunghat country, the seed answered well, and will be sown again this season. The plants of the two tracts are indeed of the same variety, but the interchange and the importation of the seed of the plant grown in the more favoured lands of Hingunghat did good. In the almost unfathomable black cotton soil of the Poornah valley the seed did not answer, and there is reason to believe that the statement of the people, that the *Jurree* plant there grown is the class of cotton best adapted to the peculiarities of the soil, is correct; and the importance of making further experiments will not be lost sight of. Attention will be given to improving the *Jurree* seed, which hundreds of years of cultivation have proved to be well adapted to the rich land of the valley of the Poornah.

57. In the east of the Oomraotee District near the hills in that part of the valley the seed was a success. Where I now am (Khangaon) some excellent cotton was grown from it, which commanded a higher price in the market than the ordinary cotton, and several cultivators have been to me for more seed, whilst others are sowing what was collected from their fields last season.

Success of the seed in the neighbourhood of Khangaon and other parts.

58. Whilst these measures were being taken to improve the cotton of our own Provinces, it afforded me great pleasure to be able to assist in the same good cause in other parts of India. Mr. Lionel Ashburner, C. S., the Collector of Khandesh, through whose efforts the once despised Khandesh cotton now holds a high place in the market, applied to me, somewhat late in the season of 1867, to assist in securing a large sup-

Hingunghat seed required by Mr. Ashburner for Khandesh.

ply of superior Hingunghat seed for his district. The applications for this seed from the Central Provinces alone had already amounted to upwards of 5,000 maunds, and now Mr. Ashburner

required some 18,000 maunds (644 tons). In November, or December, when the landholders were picking and cleaning the cotton, it would not have been so difficult, by buying up all that was to be had in the best villages of the Wurdah valley, to secure the quantity of good seed required. But in March, when the season was well advanced, and when the troubles with the cotton blocks on the Railway were at their highest, the task was none of the easiest. To add to the difficulty, a deputation of Khandesh cultivators, who had determined to buy and import the seed for themselves, were already in the market, accompanied by their Native Magistrate. An idea spread that the Khandesh people intended to buy up all the seed in the District, and the cultivators of Wurdah who, as I have already explained, generally sell their cotton in the seed, and when the sowing time comes round purchase their seed at the cleaning establishments, seeing that the price must rise, came early into the market to procure what they required. As it was necessary that Mr. Ashburner should be supplied with really good seed, *i.e.*, that it should be collected from the tracts most favourably known for their cotton-growing capabilities, the task was rendered more difficult by the field of my operations being reduced. And, indeed, I do not

Measures taken for supplying it. know how I could possibly have succeeded in carrying out Mr. Ashburner's wishes, in the time fixed, had it not been for the assistance

I received from many of the landholders, from the district authorities of Wurdah, and above all from Mr. James Melville, of the firm of Messrs. Warwick & Co., of Hingunghat, who worked most generously and indefatigably to supply the wants of the Bombay Presidency. Chinnajee Deshnookh and other landholders, to whom Budnaira, Wagholee, and the very best cotton-growing villages belong, rendered the greatest assistance in collecting seed from their villages, and in carting it off to the Railway. In one or two instances, indeed, some of my old Wurdah friends not only lent their own carts, but accompanied the seed to the Railway, to see that all went right, and thanks to their exertions, and to Inayet Hoossain, then Tehseeldar of Hingunghat (who has since been promoted to an appointment at Hyderabad), and especially to the unwearying superintendence of Mr. Melville, who, when I was called away by more urgent business in Berar, saw to the despatch of the seed, all the consignments, most of which had to be carried some 24 to 30 miles across country, reached

the rail in time. And here a new trouble arose. The seed had to be packed in bags and weighed and divided into consignments, according to the stations in Khandesh to which Mr. Ashburner required certain quantities to be sent, and then to be loaded into the waggons. Careful accounts had to be kept. All this required a certain amount of superintendence and arrangement, which devoured a great deal of time at a very busy season of the year. And although the experience of

the difficulties and annoyances which beset

Difficulties that presented themselves. mercantile transactions "up-country" eventually amply repaid me; still the days thus spent were with great difficulty spared at the

time. When every effort was being made to despatch the seed as fast as possible, it was more than disappointing to find in the morning that the gang of *Hindoo* porters engaged to load the seed, instead of being at their work, were quietly taking tickets at the Wurdah Railway Station for Nagpore, to which place they were going for a few days to enjoy themselves during the *Mahomedan* festival of the Mohurrum; and, as no bribe would induce them to give up their trip, and as no workmen could be got in the village, the work was completely at a standstill for some days. But, notwithstanding many similar *contrestemps*, the whole of the "Hingunghat" cotton seed required for Khandesh was eventually sent off before the sowing time commenced. The total quantity of seed despatched amounted to 18,000 maunds, or about 700 tons, and as a railway wagon carries about 5 tons, and about 30 loaded waggons compose a train, the seed sent to Mr. Ashburner from Wurdah took up 140 waggons or nearly 5 complete goods trains, and this will convey some idea of the large quantity that had to be collected and packed. Although the presence of so many persons in the market raised the price considerably, the seed, including all charges, viz. the carriage by carts to Wurdah, the expenses of packing, (the cost of gunny bags in the interior being considerable) weighing, loading, and a railway freight of some 240 miles to Khandesh, was laid down there at an average of rather less than 2 rupees per maund, and this rate was, I learn, lower than that at which the cultivators who went to Hingunghat to buy their

own seed managed to import it, and less than

Rate at which it was purchased. half the cost of the Berar seed imported into Khandesh the previous year, which latter seed

had the advantage of being exempt from the railway freight for 130 miles with which the Hingunghat seed was weighted. Mr. Lionel Ashburner was good enough to acknowledge very handsomely the trouble taken on his account; and, although the labour entailed by the execution of this large order during a very hot and busy

season was, as the Resident will believe, of no mean character, it has been more than repaid by the success that, I understand, attended the introduction of the Hingunghat seed last season into Khandesh. Still, whatever was done, the main share of the credit belongs to Mr. Melville, without whose assistance I should not have been able to comply with Mr. Ashburner's wants.

59. The Hingunghat seed supplied to the districts in the Central Provinces and the Berars amounted to 6,500

List of seed supplied
by the Department in
1867.

maunds. In addition to this quantity, cotton seed, both indigenous and exotic, was sent to other Governments in the quantities shown in the annexed list, and many small parcels were

given to amateurs who desired to make experiments, but with whose names it does not appear to be necessary to swell this list. The total quantity of cotton seed supplied by this Department in 1867 will thus be seen to have amounted to 24,646 maunds or 880 tons; and the labour entailed in carrying out these arrangements was, as the Resident will believe, considerable.

60. Major Trevor Clarke, as will be seen from the extract given at paragraph 41, lays great stress on the importance of procuring good seed for experiments, and great care was therefore taken to procure seed of the most unquestionable quality. In securing this object I was much assisted by Mr. Christian, of the firm of Messrs. Peel, Cassels & Co.,

who having had considerable experience of

Assistance received in
procuring good seed.

cotton cultivation on the Nile, not only procured

for me some Egyptian cotton seed direct from

Egypt, but favoured me with a valuable Memorandum on the cultivation of the plant by Mr. G. A. Kittredge, the Consul of the United States at Bombay, who ordered for me from America some fresh New Orleans cotton seed; and by Mr. Walton, in charge of the Cotton Commissioner's Office in Dharwar, of whose kind offer to assist me I availed myself in introducing the Dharwar acclimatized New Orleans seed into these Provinces.

61. The above consignments were all despatched before the rainy season of 1867 set in. Later in the year, as the testimony received from many quarters, from which extracts have already been given, tending to confirm the views taken of the excellence of the indigenous Hingunghat cotton, the subject was brought to the notice of Officers interested in the cultivation in other parts of India, and intimation was given that my services were always available in procuring seed, or in any other matter connected with the improvement of cotton cultivation.

In the Central Provinces, and in the Berars, and in Khandesh, the seed grown from that imported last season is ample for this year's sowings. From other parts of India, however, I have received numerous applications for Hingunghat seed, and in some instances for exotic seed.

List of seed supplied by this Department in 1868.

The annexed list gives the details of those applications, all of which have now been complied with; and it is only necessary to mention here that this year 56 applications for Hingunghat seed and 17 for exotic seed have been received, and that 917 maunds of seed, or nearly 40 tons, have been distributed through the agency of this Department. And it may be further interesting to observe that the applications received have been from all parts of India, from Burmah, Lower Bengal, the North-Western Provinces, the Punjab, Central India, Rajpootana, Sindh, Bombay, Madras, Mysore. If Ceylon and Oudh could be added, the list would be complete. The collection and distribution of this seed has taken up some of my time, and in the somewhat troublesome duties that attended the arrangements, I have again received the most willing and valuable assistance from my friend Mr. James Melville, who has again lightened my labour at a season when it was difficult to spare much time for this work.

62. Although it cannot be expected that all the experiments undertaken in the widely separated parts of India to which the seed has been supplied will be successful, still it may

Probable advantage of the extended nature of the experiments. fairly be hoped that in some instances the Hingunghat plant may prove itself suitable, and that experience regarding its peculiarities and adaptability may be gained.

A short Memorandum on the subject of the plant was drawn up and sent to each gentleman who was good enough to undertake experiments with the Hingunghat seed, and I am sanguine that if the forms sent with the Memorandum be filled in and returned to me, some interesting information, which will be embodied in my next report, may be collected.

The annexed Statements **K** and **L** show the quantity of seed distributed by this Department during the seasons of 1867 and 1868.

K.

STATEMENT showing the amount of Cotton Seed supplied by the Cotton Commissioner for the Central Provinces and the Berars, in the season of 1867.

No.	To whom supplied.	Hingnughat seed.	Jurree and Bunnee.	Dharwar acclimated New Orleans.	Fresh New Orleans.	New Orleans grown in Wurdah.	Egyptian.	Sea Island seed.
		Maunds.	Scers.	Mds.	Seers.	Mds.	Seers.	Mds.
	BOMBAY PRESIDENCY.							
1	Collector of Khundesh	18,005	0	..	8	..	..
2	Do. of Ahmednugur .....	....	..	30	0	..	..	..
3	Do. of Poona .....	....	..	1	0	..	..	..
4	Cotton Inspector Poomah .....	....	19	20	9	15	..	..
		18,015	20	19	5	..	..	..
	CENTRAL PROVINCES.							
5	Deputy Commissioner, Wurdah ..	2	0	..	..	19	20	..
6	Do. Nagpore ..	1,000	0	..	..	..	..	0
7	Do. Jubulpore ..	1,000	0	..	..	..	..	..
8	Do. Raepore ..	500	0	..	..	..	..	..
9	Do. Nimir ..	1,434	0	..	..	..	..	..
10	Do. Dumoh ..	2	0	..	..	..	..	..
11	Do. Chandah ..	2	0	..	..	..	..	..
12	Secretary, Agri-Horticultural Society, Nagpore	0	20	..	0	20	..	..
13	Monerhund Balkrishen Booty, Nag- pore .....	....	..	..	1	0	..	..
14	Imported into Chandah from Edullabadi	1,200	0	..	..	..	..	..
		5,140	20	..	..	21	0	20
	THE BERARS.							
15	Deputy Commissioner, Oontrancee Akola	600	0	..	..	5	0	..
16	Do. Mekhur	890	0	..	..	3	0	..
17	Do. Woon .....	....	..	..	1	0	..	..
18	Do. Yeotmal .....	....	..	..	2	0	2	0
19	Do.	1,400	0	..	..	9	0	7

Note.—This does not include a large quantity given in small parcels to amateurs, or the seed used by the Cotton Commissioner in his own experiments.

(A manud is 82 lbs.)

(Signed) H. RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars.

Dated Camp, Khan gaon, 28th June 1863.

L.

STATEMENT showing the amount of Cotton Seed supplied by the Cotton Commissioner for the Central Provinces and the Berars, in the season of 1868.

No.	To whom supplied.	Hingun- ghat seed.		Dharwar acclimatized New Orleans.		Fresh Amer- ican New Orleans.	
		Mds.	Srs.	Mds.	Srs.	Mds.	Srs.
<i>Applications received through the Government of Bengal.</i>							
1	Junior Secretary to Government of Bengal ..	..	..	..	..	2	32
2	Commissioner, Presidency Division ..	13	15	..	..	..	..
3	Do. of Patna Division ..	10	15	..	..	..	..
4	Do. of Bhaungpore Division ..	8	0	..	..	..	..
5	Deputy Commissioner Durung Assam ..	20	15	..	..	..	..
6	Do. do. Seelsaugar Assam ..	2	15	..	..	..	..
7	Do. do. Nowgong Assam ..	0	15	..	..	..	..
8	Do. do. Luckimpore Assam ..	0	15	..	..	..	..
9	Do. do. Hill tracts, Chittagong.	1	15	..	..	..	..
10	Do. do. Singbham, Chota Nagpore.	0	15	..	..	..	..
11	Assistant do. Palamow, Chota Nagpore.	1	15	..	..	..	..
12	Magistrate and Collector of Cuttack ..	5	15	..	..	..	..
13	Do. do. of Howrah ..	1	35	..	..	..	..
14	Do. do. of Hooghly ..	1	35	..	..	..	..
15	Do. do. of Bardwan ..	2	15	..	..	..	..
16	Do. do. of Baneorah ..	5	15	..	..	..	..
17	Do. do. of Midnapore ..	1	20	..	..	..	..
18	Do. do. of Bograh ..	1	15	..	..	..	..
19	Do. do. of Noacolly ..	1	15	..	..	..	..
20	Do. do. of Tipperah ..	1	15	..	..	..	..
21	Doctor Anderson, Darjeeling ..	0	15	..	..	..	..
22	— Manson, Esq., Bagurburree Mymensingh.	0	15	..	..	..	..
23	— Thoms, Esq., Durnugger Mymensingh.	0	15	..	..	..	..
24	W. Foley, Esq., Burrisaul ..	0	15	..	..	..	..
25	F. Phelan, Esq., Furreedpore ..	0	15	..	..	..	..
26	S. Gervan, Esq., Pubna ..	0	15	..	..	..	..
27	A. D. C. Rehling, Esq., Rungpore ..	0	15	..	..	..	..
28	C. J. Brown, Esq., Cachar ..	1	20	..	..	..	..
<i>Applications received through Commissioner in Sind.</i>							
29	Superintendent Thurr and Parkur, Sind.	2	0	..	..	..	..
30	Political Superintendent, Upper Sind Frontier.	7	20	..	..	..	..
31	Collector of Kurrachee ..	7	20	..	..	..	..
	Carried forward..	17	0	..	..	..	..

No.	To whom supplied.	Hingunghai seed.	Dharwar acclimatized New Orleans,		Fresh Ameri- can New Orleans.	
			Mds.	Srs.	Mds.	Srs.
	Brought forward.	17	0	..	..	..
<i>Through Officiating Commissioner, Southern Division.</i>						
32	Collector of Ahmednuggur.....	18	0	..	..	..
33	Do. of Belgaum	2	0	..	..	..
34	Do. of Sattara	1	10	..	..	..
35	Do. of Poona	0	25	..	..	..
<i>Through Inspector in Chief Cotton Department.</i>						
36	Cotton Department in Sind	14	0	..	..	..
37	Do. do. Dharwar	28	0	..	..	..
38	Do. do. Surat and Broach..	5	0	..	..	..
39	Do. do. Sholapore and Poona	158	20	..	..	..
<i>Applied for direct.</i>						
40	Collector of Broach	3	0	..	..	..
41	2nd Assistant Collector of Khandesh	8	0	..	..	..
		..	15	..	..	..
<i>Madras Presidency.</i>						
42	Secretary to the Government of Madras.	25	0	..	..	2
43	Commissioner of Mysore	10	0	..	..	16
<i>British Burmah.</i>						
44	Secretary to the Government.....	0	15	..	..	..
45	Horace Spearman, Esq.	0	15	..	..	..
<i>Punjab.</i>						
46	Secretary to the Financial Commissioner.	10	2	..	..	..
<i>North-West Provinces.</i>						
47	Secretary to the Board of Revenue, Allahabad	10	15	..	..	..

No.	To whom supplied.	Hingunghat seed.		Dharwar acclimatized New Orleans.		Fresh American New Orleans.	
		Mds.	Srs.	Mds.	Srs.	Mds.	Srs.
<i>Central India.</i>							
48	Major W. Osborne, C. B., Agent Governor General, Bhopal	5	15	..	..	..	..
49	Deputy Bheel Agent, Maundpore	37	15	..	..	..	..
50	Agent to Governor General, Rajpootana.	100	0	..	..	..	..
51	Captain Blair, Assistant Agent Governor General, Tonk	20	15	2	0	1	30
52	1st Assistant Agent Governor General, Indore.....	12	0	..	..	1	30
53	H. H. Maharajah's Vakeel, Indore	2	0	..	..	..	..
		177	5	2	0	3	20
<i>Central Provinces.</i>							
54	Deputy Commissioner, Jubbulpore	100	0	5	0	1	30
55	Do. do. Nagpore .....	..	..	..	..	1	30
56	Secretary, Agri-Horticultural Society, Nagpore	1	20	..	..	1	30
57	J. Melville, Esq., Hingunghat .....	..	..	..	..	3	20
		101	20	5	0	8	30
<i>The Berars.</i>							
58	Assistant Commissioner Bomonjee Jamsetjee, Akola.....	0	14	..	14	0	14
59	C. Smith & Co., Khangaon	0	8	..	..	0	8
60	Framjee Jamsetjee, Khangaon	0	4	..	4	0	4
61	R. H. Wilson, Esq., Oomraotee	1	0	..	..	..	..
62	Seed Garden, Akola	1	20	..	..	..	..
63	Do. Akote	1	20	..	..	1	30
64	Do. Khangaon	1	0	0	22	0	20
65	Deshmookh of Khangaon	2	20	..	..	..	..
		8	6	1	0	2	36
	Grand Total....	683	13	8	0	22	0

Note—A Maund is 82 lbs.

(Signed) H. RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars.

Dated Camp, Khangaon, 28th June 1868.

**B.—MEASURES ADOPTED TO IMPROVE THE CULTIVATION OF
COTTON BY THE INTRODUCTION OF EXOTIC SEED.**

63. The endeavours made to introduce exotic cotton into these

Experiments with exotic seed.

Provinces, and the degree of success that has attended these experiments have now to be noticed.

64. The remarks contained in paragraphs 46 to 49 will have shown that, prior to the appointment of a Cotton Commissioner, considerable attention had been paid to this important subject in the Central Provinces, and that the Wurdah district had for some time enjoyed the advantage of the services of a Superintendent of Cotton Affairs specially appointed to attend to the improvement of the cotton plant in that valley. The efforts of Dr. Cullen and of Mr. Jones, C.S., and the amount of success that attended their experiments with exotic seed, have already been reported to Government by those Officers, and narratives of their proceedings have been published in the *Supplement to the Government Gazette*,

Attention paid to the subject by the Superintendent Cotton Affairs.

or have been incorporated in the Administration Reports. It is not then my purpose to refer here in detail to these operations; but inasmuch as my action has to some extent been guided by their experience, some notice of the experiments undertaken by them will be necessary.

65. Dr. Forbes, to whose visit to the Central Provinces reference

Experiments with acclimatized New Orleans Cotton.

has already been made, advocated in his Memorandum published in the *Government Gazette* that experiments should be tried in the Wurdah district with acclimatized New Orleans

cotton similar to that grown in Dharwar, with a view to determine whether his exotic could not profitably be introduced into the Wurdah valley in supersession of the indigenous cotton generally known by the name of "*Hingunghat*," and to this subject the attention of Dr. Cullen, Superintendent of Cotton Affairs, who was appointed soon afterwards, was immediately turned. It was very properly laid down by Dr. Forbes, and acquiesced in by Government, that "the introduction of the New Orleans cotton must, in the first instance, be effected by the State, without reference to the cultivators. They cannot be expected to interest themselves to the extent required, or to give up their land to the production of a cotton of the success of which they must at least feel doubtful, until they have had a fair opportunity of judging of its value," and thus no attempt has in any way been made to press the seed upon the cultivators, and the experiments have invariably been undertaken by the Superintendent at the risk and expense of Govern-

ment, in the hope that the people, if they should see the success of the plant, would gain confidence, and of their own accord gladly undertake its extension. In 1865 five selected fields, each of 10 acres, were sown with acclimatized New Orleans cotton seed, grown in the Dharwar district, and supplied by Dr. Forbes. The results were not very encouraging.* The experiments were continued on a similar scale during the following season (1866) by Mr. Jones, C.S., who succeeded Dr. Cullen on that

gentleman's departure on medical certificate to Mr. Jones' opinion of Europe. The results of Mr. Jones' experiments, and the conclusions drawn by him therefrom, are contained in the following paragraph from the report submitted by him to the Chief Commissioner last season. He then wrote:—

"It is now possible to answer the question, whether the experiments of the last two years have been successful, or whether the improvement of the indigenous staple by selection and more careful cultivation will not produce a larger amount of better cotton than could be obtained by the introduction of the New Orleans seed? In my opinion the experiments with the New Orleans seed, as far as it has hitherto been conducted, have not been decisively favourable. If we regard out-turn per acre, the crop of last year was miserably small, and that of this season has only reached the average of the district, and this is the result of the most careful farming on selected fields. Again, if quality be regarded, I find that the staple, after making allowance for over-ginning, is pronounced weak, and that the colour and cleanliness, which the judges admire, are almost entirely due to careful cultivation, and ought not to be considered in comparing this cotton with the indigenous, and that even with all this advantage of cleanliness, the cotton is priced somewhat below fine Hingunghat. On the above grounds, I came to the conclusion that no attempt should be made to force or press the new seed upon the cultivators of this district. It has been thoroughly brought to their notice, and though its progress should be attentively supervised, it should now be left to make its own way on its own merits. Those Malgoozars who have seen it fail will avoid it; those who, like the Malgozar of Chittora, have seen it succeed are anxious to try it again. It may be hoped that further trials will make its cultivation more a matter of certainty by eliciting further information regarding the conditions of its successful production. It will be gathered from the above, that although further Government experiments could do no harm, yet that I

* A detailed account of the experiments will be found at page 217 of the *Government Gazette*.

do not consider them necessary ; and that the attention of Government Officers should now be given to watching the improvements made by the Malgoozars with New Orleans seed ; to making experiments with other varieties such as Egyptian and Peruvian ; and above all, to the improvement of the indigenous plant."

66. The duties of the Superintendent Cotton Affairs in Wurdah were transferred to the Cotton Commissioner in May 1867, and according to this view of Mr. Jones, in which I thoroughly concur, my action in regard to the introduction of exotic cotton has to a great extent been guided.

67. To say the least, the results of these experiments, so far as they had gone, were not such as to justify the supersession of the indigenous plant by the acclimatized Dharwar seed ; and although it was not deemed expedient, as will be shown in a further paragraph to discontinue the experiments, it became more and more

My own views thereon. clear that any attempt to substitute for the excellent cotton of the Wurdah valley, a foreign plant, the superiority of which had not been established on the most undoubted proof, was highly to be deprecated.

68. And I must here refer to a subject, which soon after joining my appointment as Cotton Commissioner presented itself, and was urged on my attention as being of the first importance, viz. the question as to whether, in the matter of improving the cotton staple for the Home market, a greater degree of success could be obtained in this part of India by introducing exotic seed, or by improving the indigenous cotton of the country ? And in considering this question, the relative merits of the various sorts of cotton had to be weighed. In October 1866, in accordance with the instructions of Government, I proceeded to Dharwar, the object of my visit being, as expressed in letter of instructions from the Secretary to the Chief Commissioner that " I should

Tour through the Dharwar district. learn on the spot all that had been done in Dharwar with a view to attempting to do the same in Central India." Thanks to the cour-

tesy of the Government of Bombay, I had the very best opportunities of profiting by my tour ; and Mr. Walton, who in Dr. Forbes' absence had charge of the office of Cotton Commissioner of the Bombay Presidency, was good enough to take me through the district, and to show me and explain to me most fully everything connected with the great improvement that had been effected in Dharwar during the last few years. In my enthusiasm for all that had been accomplished there, and in my anxiety to achieve like success, I returned to Bombay with a hope that

M.

COMPARATIVE Statement showing the Liverpool quotations for New Orleans, Dhollerah, Dharwar, and Hingunghat Cotton, from December 1866 to June 1868.

DATE.	Middling now Orleans.	Dhollerah, Fair to good.	Dharwar, Fair to good.	Hingunghat, Fair to good.
	Pence.	Pence.	Pence.	Pence.
1866—December 1st	14 $\frac{1}{4}$	11	12 $\frac{1}{4}$	12 $\frac{1}{4}$
Do. 15th	14 $\frac{1}{4}$	12 $\frac{1}{4}$	12 $\frac{1}{4}$	12 $\frac{1}{2}$
Do. 22nd	15 $\frac{1}{2}$	13	13 $\frac{1}{2}$	13 $\frac{1}{2}$
Do. 31st.....	15 $\frac{1}{2}$	12 $\frac{1}{4}$	13 $\frac{1}{4}$	13
1867—February 1st	15	13	13 $\frac{3}{4}$	13 $\frac{3}{4}$
Do. 8th	14 $\frac{1}{2}$	12 $\frac{1}{2}$	13 $\frac{1}{2}$	13 $\frac{1}{2}$
Do. 15th	14 $\frac{1}{2}$	12 $\frac{1}{2}$	13 $\frac{1}{2}$	13 $\frac{1}{2}$
Do. 23rd.....	14	12 $\frac{1}{2}$	13 $\frac{1}{2}$	13 $\frac{1}{2}$
March 1st	14	12 $\frac{1}{4}$	13	13
Do. 8th	13 $\frac{3}{4}$	12	13	12 $\frac{1}{2}$
Do. 16th.....	13 $\frac{3}{4}$	12	12 $\frac{1}{4}$	12 $\frac{1}{2}$
Do. 24th.....	13 $\frac{1}{2}$	12	12 $\frac{1}{4}$	12 $\frac{1}{2}$
April 1st	13 $\frac{1}{2}$	11 $\frac{1}{4}$	12 $\frac{1}{4}$	12 $\frac{1}{2}$
Do. 8th	12 $\frac{1}{2}$	11 $\frac{1}{4}$	12	12 $\frac{1}{4}$
Do. 15th.....	12	11	11 $\frac{1}{4}$	11 $\frac{1}{2}$
Do. 23rd.....	10 $\frac{1}{2}$	10 $\frac{1}{4}$	10 $\frac{1}{4}$	10 $\frac{1}{4}$
May 1st	11 $\frac{1}{4}$	10 $\frac{1}{4}$	10 $\frac{1}{4}$	11
Do. 8th	11 $\frac{1}{4}$	10 $\frac{1}{4}$	10 $\frac{1}{4}$	10 $\frac{1}{4}$
Do. 16th.....	11 $\frac{1}{4}$	10 $\frac{1}{4}$	10 $\frac{1}{4}$	11
Do. 31st.....	11 $\frac{1}{2}$	10 $\frac{1}{4}$	10 $\frac{1}{4}$	10 $\frac{1}{2}$
June 15th.....	11 $\frac{1}{4}$	9 $\frac{1}{2}$	10	10
July 1st	11 $\frac{1}{4}$	9 $\frac{1}{2}$	9 $\frac{1}{4}$	9 $\frac{1}{2}$
Do. 16th.....	10 $\frac{5}{8}$	9	9	9
August 1st	10 $\frac{5}{8}$	8 $\frac{1}{4}$	9	9
Do. 16th.....	11 $\frac{1}{8}$	8 $\frac{1}{4}$	9	9
Do. 31st	10 $\frac{3}{8}$	6 $\frac{1}{2}$	8 $\frac{1}{4}$	8 $\frac{1}{4}$
September 16th	9 $\frac{1}{4}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$	8 $\frac{1}{4}$
October 1st	9	6 $\frac{1}{4}$	7 $\frac{1}{4}$	7 $\frac{1}{4}$
Do. 15th.....	8 $\frac{5}{8}$	7	7 $\frac{1}{2}$	7 $\frac{1}{2}$
Do. 30th.....	8 $\frac{7}{8}$	7 $\frac{1}{4}$	7 $\frac{1}{4}$	7 $\frac{1}{2}$
November 15th.....	8 $\frac{5}{8}$	7 $\frac{1}{8}$	7 $\frac{1}{4}$	7 $\frac{1}{4}$
Do. 30th.....	7 $\frac{5}{8}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{1}{4}$
December 31st.....	7 $\frac{5}{8}$	6 $\frac{1}{4}$	6	6 $\frac{1}{4}$
1868—January 31st.....	8 $\frac{1}{8}$	7	6 $\frac{1}{4}$	7
February 15th.....	8 $\frac{1}{8}$	8	7 $\frac{1}{4}$	8 $\frac{1}{4}$
March 4th	9 $\frac{1}{8}$	8 $\frac{1}{4}$	8 $\frac{1}{2}$	9
Do. 18th.....	10 $\frac{1}{8}$	9	9	9 $\frac{1}{2}$
April 1st	12	10 $\frac{1}{4}$	10 $\frac{1}{2}$	11 $\frac{1}{4}$
Do. 15th.....	12 $\frac{1}{8}$	11	11	12 $\frac{1}{2}$
Do. 30th.....	12 $\frac{1}{8}$	10 $\frac{1}{4}$	10 $\frac{1}{4}$	11 $\frac{1}{2}$
May 13th.....	12 $\frac{1}{8}$	10 $\frac{1}{2}$	10 $\frac{1}{2}$	11
June 4th	11 $\frac{1}{2}$	10	9 $\frac{1}{8}$	10 $\frac{1}{2}$
Average of 42 quotations.	11 $\frac{1}{2}$	10	10 $\frac{1}{4}$	10 $\frac{1}{2}$

Where Hingunghat is quoted higher than Dharwar Saw-ginned, the quotation is in black figures, so also with Dharwar Cotton. Where the quotations are the same, no mark is made.

I have not a complete set of Circulars, and I fear that the quotations are, if anything, not quite fair to the faw-ginned-Dharwar. Still supposing the average price of Saw-ginned Cotton during the period for which the quotations are given to be the same as Hingunghat, i.e. 10 $\frac{1}{2}$ d., the superiority of the Dharwar Cotton would hardly be so clearly proved as to justify any crusade against the indigenous cotton of Central India.

the Hingunghat and the other indigenous plants of Central India might, as in Dharwar, soon be superseded by the acclimatized New Orleans cotton, and for some time at least, my hopes for the improvement of the cotton of our Provinces all centred in the introduction of exotic seed. But during the many opportunities I had in Bombay of consulting with members of the firms there, all deeply interested in the cotton trade, and all possessed of great experience in Indian cottons, I began by degrees to realize that the cotton of our part of India was very highly esteemed in the Bombay market and in Liverpool, and that it was held to be not inferior to any cotton exported from India. The cotton of Hingunghat during an average season may indeed be considered the very best in India, and generally commands the highest price in the Home market. As a proof of its merits, I subjoin here a table showing the price of this and other Indian cottons during the last year and a half:—

69. The price of Middling Orleans for the same period is also annexed. It will be seen that the saw-ginned

Comparative prices of
Hingunghat and Dharwar
cotton.

Dharwar cotton and that of Hingunghat run one another very closely. They come into the markets at different seasons of the year, and in April the Hingunghat is "new" and therefore commands a higher price than the consignments of

Dharwar then available, which are "old" cotton; and a counterbalancing disadvantage attends the Hingunghat cotton later in the year when the new Dharwar begins to arrive.

But, if an average be taken, the price is rather in favour of the Hingunghat variety. Broach cotton holds quite as high, often even a higher place, but this is an indigenous cotton, and its advance (to be referred to hereafter) is to be attributed to the great care that has been taken in its cultivation and preparation for the market, and not to the introduction of any exotic seed. With these figures before me, the question immediately arose as to whether it was expedient to try and supersede the indigenous cotton of Hingunghat by a cotton which certainly hardly held a higher position in the market?

70. Although on the table-land of Central India at a distance of four to five hundred miles from the coast, and beyond the reach of the invigorating sea breezes, the exotic seed might probably labour under disadvantages which did not impede its progress in Dharwar, still, in considering the question, I was willing to assume that the acclimatized New Orleans could be cultivated as successfully in these

Provinces as on the coast. I then tried to ascertain whether, even if the same measure of success could be obtained by us, as that which, with years of labour, in a favourable climate, had crowned Dr. Forbes' exertions in Dharwar, whether, with all these rather doubtful points scored in our favour, any real improvement would be effected by the introduction of exotic seed; if, in fact, the merchants on whom we depend for our custom would prefer to receive a cotton equal to Dharwar New Orleans, grown in the Wurdah valley to the indigenous "Hingunghat"?

Opinions of Merchants and others regarding the comparative merits of Dharwar and Hingunghat cotton.

The answers I received to my inquiries are given below, and speak for themselves; and, as they represent the opinions of firms deeply interested in the quality of the cotton that finds its way to the Bombay market, they will doubtless be considered of great value.

The Honorary Agents for the Cotton Supply Association, whom I addressed on the subject, favoured me with the following reply; and, as reference was subsequently made to it by the Association in Manchester, I presume that the course therein indicated received the approval of the Association:—

" We beg to acknowledge the receipt of your favour of the 28th ultimo, asking our opinion regarding the comparative merits of Hingunghat and Dharwar saw-ginned cotton, and the desirability of substituting the latter description for the former in the Central Provinces. We have given the matter our careful consideration, and in reply to your first question, whether in our opinion consumers would be glad to receive cotton equal to Dharwar saw-ginned from the Wurdah district, instead of the Hingunghat, which is now produced, we certainly think that they would not, for Hingunghat cotton is valued in the Liverpool market quite as high as Dharwar, as being whiter and stronger. This being the case, we need scarcely say, that most decidedly we do not recommend the extermination of Hingunghat cotton, and the introduction of Dharwar saw-ginned into the districts where the former is now (so successfully) grown. We agree with you that the difficulties of introducing the latter would be very great; and, though we doubt not but that the energy of officers who take a deep interest in the matter,—for which energy has already done so much for the improvement of cotton cultivation in Western India,—would in time overcome all difficulties, we fail to see that the result when obtained would be desirable, or in any way commensurate with the cost of its production.

" We think rather that all your efforts should be devoted to the improvement of the good cotton which is already grown; and in con-

nection with this point we would suggest the use of the Macarthy gin, which does not damage the staple, and which cleans the cotton quite as efficiently as the saw-gin. It is now much used in Broach, and the cotton cleaned by it comes to market in a beautiful state. We enclose a letter from our Mr. Christian on the subject of Egyptian cotton, and wish you every success in your good work."

I also received the following opinions from firms in Bombay who were good enough to express an interest in the subject:—

"With regard to the advisability of replacing the Hingunghat cotton as at present produced with cotton similar to the saw-ginned Dharwar, we may say that our feeling is against the change. At the same time we think that even the Hingunghat cotton could be much improved by producing it from good American or exotic seed provided that such a growth did not get injured in the process of cleaning.

"The saw-gins used in the Dharwar district we understand are nearly all out of order, and there is no doubt that they injure the cotton very much more than those used in America. We think that this is caused quite as much by the gins being kept in a neglected state in this country as by the natural unsuitableness of the Indian cotton to the saw-gin. We consider the best Hingunghat cotton to be quite as good in its way as the best Dharwar, though the latter is of a kind which resists the effects of the rainy season better than the Hingunghat does. Our shipments of the best Hingunghat have brought relatively as good a price in Liverpool as those of the best Dharwar, and there being but a small quantity of Hingunghat as compared with saw-ginned, have consequently found it to meet with a quicker sale. Some spinners manufacture cloth which requires cotton of the Hingunghat nature, and they cannot get any which answers their purpose so well as it does. In two words, we think that a more valuable kind of cotton than Dharwar might be produced in the Hingunghat district from exotic seed; that Hingunghat as it reaches this place before the monsoon is as valuable as Dharwar is; and that now the railway has been extended to Nag-pore, there is every chance of its being all brought down in that period. We would recommend Platt's Macarthy gin, as used so successfully in Broach, instead of the saw-gin for the product from an exotic seed in the Hingunghat districts. From our Liverpool friends' advices we find that on the 1st June 1866, new Hingunghat was worth 11½d. per lb., new Oomraotee and Broach 10½d. per lb., and "fair" Dhollera 9½d. per lb. The quotation on the same date for good "fair" Hingunghat was 11d., and that of the same classification of Dharwar 10d. At this date the Hingunghat in the market was new cotton, and Dharwar old. On

the 1st October when the Dharwar on the market was new crop cotton, and most of the Hingunghat was cotton shipped late in the season, or during the monsoon, the finest Hingunghat was worth 13d. per lb., and the finest Dharwar 12½d. to 13d., fair Dhollera at that time being quoted at 11d. per lb. Later in the season, when the best sorts of Hingunghat had disappeared from the market, and when there was a fair supply of the best Dharwar, good fair Dharwar was worth ½d. per lb. more than the same classification of Hingunghat."

"We may also mention for your information that some samples of our shipments of Hingunghat of this season (the crop by the way is of very good quality) were valued at 13½d. per lb. on the 9th February, when the best saw-ginned Dharwar on the spot was worth about the same price, and fair Dhollera 11¾d. per lb."

"From my own experience of the spinning of cotton I consider that a quality of cotton, say from 'fair' to 'good fair' Hingunghat is equal to "middling Upland," and not much inferior to middling New Orleans. During my last stay in Europe I saw several of my friends in the manufacturing districts in France to get their opinion regarding Indian cotton. They were all unanimous that Hingunghat is the very best quality of India, and some of them declared it to be equal to New Orleans cotton. When I am at liberty to choose in Bombay to my judgment the best quality of cotton for manufactures, I always give the preference to Hingunghat. If none can be obtained of that description, I choose Oomraotee, which is generally preferred in France to Dharwar saw-ginned. With the new system of cleaning cotton in the mills in Europe, I do not consider Dharwar saw-ginned more advantageous than good kind of Oomraotee."

"We are this morning in receipt of your letter No. 1076 of the 28th ultimo, asking us for our opinion as to the comparative merits of Hingunghat and Dharwar saw-ginned cotton, and whether we consider it advisable to supersede the former in the districts where it is now grown by the latter. The best test of the comparative merits of the two descriptions should be the price they bring in Liverpool, where they are bought by the consumers; but as the different growths reach Bombay and are shipped from here at different periods of the year, they do not come into fair competition in Liverpool, the best of the Hingunghat crop being in the market when only the last, most probably the refuse, of the previous saw-ginned crops is selling, and *vice versa.*"

"Looking back for three years we see that, 'fair' Hingunghat

at the time when the best of the crop was arriving in Liverpool, often sold for $1\frac{1}{2}d.$ above 'fair' saw-ginned; but when the best of saw-ginned crop would be at Home, 'fair' is only once in three years quoted $1d.$ higher than 'fair' Hingunghat, and the usual difference is only $\frac{1}{2}d.$ to $\frac{3}{4}d.$, showing clearly that the Home manufacturers prefer and are willing to pay a higher price for Hingunghat than for saw-ginned."

"From samples of cotton grown in Khandesh, submitted to the Chamber of Commerce by Mr. Ashburner from Hingunghat and acclimatized American seed, we doubt if the exotic seed will answer in the Wurdah district, the soil of which we believe is very similar to that of Khandesh. In the samples we refer to the cotton grown from Dharwar seed was very inferior, the staple being short and weak, while the cotton grown from Hingunghat seed was almost equal to that grown in the Hingunghat districts."

"We have also seen some samples of cotton grown in Khandesh from Egyptian seed pronounced by a gentleman who has had great experience in this description, to be equal to the bulk of the cotton grown in Egypt."

"We would venture to suggest that you would be conferring a great benefit upon both consumers and growers of cotton by inducing the latter to devote more care to the irrigating and picking of their crops, and by distributing as much as possible the seed from the districts known to produce the best cotton."

"Leaving entirely out of the question the suitability of the soil in the Hingunghat district for the cultivation of saw-ginned Dharwar cotton, and simply considering the comparative values of the two descriptions, we think it is not at all desirable that the excellent cotton now received from Hingunghat should be supplanted by saw-ginned Dharwar; the latter (although as a rule commanding a higher price) being in our opinion a less generally useful class of cotton."

71. The firms at Hingunghat themselves, who should be as good judges as any, and who are certainly more deeply interested than any one else in the improvement of the cotton of this part of the district, are strongly against any change in the seed.

Opinions such as these were, I think it will be admitted, quite sufficient to justify me in determining not to attempt a crusade against the cotton of Hingunghat.

72. But it may perhaps be thought that in the Wurdah valley a cotton from exotic seed might be produced not only equal to that grown in Dharwar, but *immensely superior to any exotic cotton* that has ever appeared in the Bombay market. Unfortunately the experiments carried on with the greatest care in Central India have as yet shown that the produce of the plant is inferior,

Question whether an exotic cotton superior to the saw-ginned Dharwar could be produced in Central India.

nor is this inferiority counterbalanced by an increased yield. The out-turn per acre in the experimental fields, which were the very best in the district, hardly exceeded the yield of indigenous cotton in the neighbouring fields on which no special care or attention had been bestowed. That the exotic cotton produced by these careful experiments, undertaken in the Wurdah valley was considered by competent judges to be inferior to the ordinary cotton of Hingunghat, will be learnt from the following extracts:—

The most favourable opinions given of the exotic cotton were the following reports by Liverpool and London brokers on some samples grown in selected fields by Dr. Cullen in the season 1865-66:—

Liverpool opinion.—“The colour of all the cotton is very good, but the staple is too much cut, especially the bales of the Takulkaree, Wagholee, and Burhurree fields. We think the cotton is over-ginned. The bales from fields Kookee and Nagiana come very near American cotton, and cotton of this description would have ready sale in this market. The colour is everything that could be wished, the staple is the only fault.”

London opinion.—“Good, fair to good saw-ginned Surat cotton, bright, very white and clean, fair staple. Fields Nagjhurree and Wagolee slightly inferior to the other samples in colour and staple, and are not quite free from seed and a little leaf. On the whole, the staple is rather weak (the consequence of over-ginning), and cannot be compared to the superior qualities of saw-ginned Dharwar, which, however, are deficient in colour and cleanliness. Probable value about 11d. to 11½d. per lb.”

It will be seen that even these specimens were declared to be inferior to saw-ginned Dharwar cotton, to which the indigenous Hingunghat cotton is shown to be at least equal.

Mr. Jones, C.S., in his report, gives the following account of a trial of the respective values of indigenous Hingunghat and Dharwar American cotton grown in the Wurdah district, both cleaned by a Platt's Macarthy gin.

"Major Hassard, when he visited this district on tour of inspection, took away with him one sample of indigenous Hingunghat cotton, and one of the New Orleans cotton from the Wagholee fields. Both were cleaned in a *Platt's gin* and submitted to judges. The opinions received are as follows. The judges were not told where the cottons came from :—

Hingunghat indigenous.—"About as fine Surat cotton as I have ever seen; in cleanliness it is something extraordinary, and I should think it would be classed as Hingunghat or equal thereto."

Wagholee New Orleans.—"Is not so bright, and the staple is much weaker; in fact, although also very nice cotton, I should say there would be a difference of quite a penny a pound made in Liverpool. There appears to be a little stain in both, but nothing of any consequence. The first is fully equal to good fair, and the others about fair in appearance, I should say."

In forwarding the above judgments, Major Hassard expressed his own opinion that the broker was a little unfair to the second or Dharwar New Orleans sample; but he adds, that when sown out of the influence of the sea air, New Orleans does deteriorate in respect of strength of fibre.

This would seem to show that the weakness of the staple in the exotic cotton grown in Central India is not to be attributed to the effects of the saw-gin. Major Hassard, who has had considerable experience in Dharwar, says that "when sown out of the influence of the sea air, New Orleans cotton does deteriorate in respect of strength of fibre." Now that the climate of the plateau of Central India is very different from that of Dharwar (which is, I believe, generally considered to be the most equable and pleasant climate in the Bombay Presidency) there can be no doubt; and because a plant answers in Dharwar, it is hardly a reason that it should succeed in the Central Provinces. On the samples of the crop of 1866-67 cotton grown most carefully in selected fields, the Chamber of Commerce at Bombay passed the following opinion :—

"I have to acknowledge the receipt of your letter of 24th ultimo, forwarding a sample of cotton grown in the Wurdah district from acclimatized New Orleans cotton seed which was duly submitted to the Committee of the Chamber at their last meeting.

"In reply, I am directed to inform you that the Committee consider the staple of the sample submitted irregular and weak; the quality is considered fair, and on the whole better than any other samples of cotton grown in Central India from acclimatized New Orleans seed that have been submitted for their inspection. The Committee, how-

ever, are of opinion that it is not so desirable a desription of cotton as Hingunghat."

And on similar samples Messrs. Warwick and Co., who as has been mentioned, have every interest in improving the cotton of the Wurdah district, in which they do so large a business, passed the following sentence:—

"The staple is on the whole equal to the second pickings of our Hingunghat produce, being somewhat weaker and more uneven than the indigenous Hingunghat, which is brought to market in December and January. The staple shows little sign of injury from having been ginned, and is very much better than that on which we reported last year for Dr. Cullen."

The same firm, on a second sample, wrote:—

"I have the honour to acknowledge receipt of a sample of cotton which has been grown in this district from acclimatized New Orleans seed. The staple has not been injured by the churka; but is weak and uneven, being inferior in quality to the indigenous Hingunghat produce."

73. The experiments that have come under my own observation have not ben attended with any greater success. The Secretary to the Chief Commissioner, in his letter of instructions, laid down that the Cotton Commissioner, by reason of the great extent of country over which his operations would extend would not be able to undertake experiments himself. And last season I found that I had few opportunities of watching many of the fields myself. At Nagpore I sowed three

Experiments at Nagpore. fields with Egyptian seed (procured for me by Mr. Christian) with fresh New Orleans supplied by Mr. Kittredge (direct from America) with acclimatized Dharwar New Orleans, and with Hingunghat; and the only cotton that weathered the heavy monsoon was the indigenous plant! In the gardens of the Agri-Horticultural Society at Nagpore, the foreigners met with more success. And perhaps the careful superintendence of Mr. Ross, and the scientific experience of the trained European gardener would succeed, if anything could, to induce the exotic plants to stand the Central Indian climate. The experiments undertaken by the Brethren of St. Francois de Sales, at their colony near Tanna in the Nagpore district, did not succeed. And when the heavy rain ceased, and admitted of my making a tour in the Wurdah district, I found that the exotic seed had suffered even more severely than the indigenous cotton, and I was obliged to allow the

people to plough up the withered stumps in the hope of the fields bearing a spring harvest.

74. The experiments that have been attempted in the Berars have scarcely proved more successful. Some ac-

Experiments in the Berars. climatized New Orleans cotton was sown in the Oomraotee and Akola districts. The produce looked well enough, but a reference to the

Chamber of Commerce at Bombay elicited the following opinion regarding their merits :—

Oomraotee specimen.—“ I have to acknowledge the receipt of your letter of the 8th instant, together with the box containing the cotton samples therein advised.

“ The samples of cotton were duly submitted to the Committee of

Opinion on the experimental New Orleans cotton grown in Oomraotee. the Chamber at their last meeting, and I have now the honour to subjoin a Memorandum giving their opinion thereon. I am further directed to state that, in the opinion of the Committee, the cotton of which samples were laid before them, is of an inferior character, and not comparable to good Oomraotee or Hingunghat.”

On the specimen grown in the Akola district the following opinion was passed by a firm in Bombay :—

“ We beg to acknowledge receipt of your letter of 15th instant, also of the sample of cotton therein referred to, which we have examined according to your request, and have now the pleasure to report there-

on. We reply to your second query first, as a description of the cotton itself more naturally precedes a comparison with other descriptions.

On the cotton grown in the Akola District. The cotton does not appear to have been injured in preparation. Very clean, good, bright, creamy colour, but a little stained, staple of fair length, but a little uneven, fine and silky, but soft and deficient in strength. Compared with Hingunghat and Oomraotee cotton, the cotton is equal to the former in cleanliness, and fairness of staple, but is *greatly inferior in strength*. It is cleaner than the general run of Oomraotee cotton, but is also less valuable than this description owing to its want of strength.”

75. At the Akola Exhibition the various specimens grown from exotic seed in these Provinces and the Berars were exhibited, and these were pronounced to be inferior in workable qualities to the indigenous cotton. To the improved “ Khandesh Hingunghat” was awarded the first place. A specimen of Hingunghat cotton that had suffered from

the rain was placed next, and then came the cotton of Akote. A specimen of Dharwar acclimatized New Orleans grown in an experimental field of the Bombay Government, was declared to be the best exotic cotton exhibited; but was pronounced by competent judges to be inferior in strength and usefulness to the indigenous cotton, as will be seen by a more detailed notice of the subject in a later paragraph.

76. Still I am not discouraged by the want of success that has attended the experiments with exotic seed. Last year the monsoon was quite exceptional, and much of the failure may be attributed to the heavy rain. And, although the opinions and results detailed above have precluded my attempting the immediate introduction of the Dharwar New Orleans cotton into Central India on a large scale, as my enthusiasm had at first prompted, still I am not willing to accept the absence of decided success in the experiments with exotic seed as conclusive against the chance of ultimate success. The not very satisfactory results, instead of being an argument against further trials, seem rather to indicate the importance of continuing experiments with all sorts of exotic seed with the greatest possible care, and watching the results most narrowly, so that the adaptability of exotic cotton to our soil and climate may be definitely and authoritatively decided; and with this view I have made arrangements this season for such careful experiments being made, and I am at this moment in one of the best cotton growing tracts, in order that I may personally supervise the selection of the fields, and the sowing

Further experiments proposed. and other operations connected with the experiments, which will be watched with some anxiety by myself, and the results of which will duly be reported. This season I have

been somewhat put off my purpose by the hope and expectation that, before the sowing season commenced, the Assistants, to whose advent I have long been looking forward, and who it is hoped may yet be supplied to Berar, would arrive, and be able to assist me in conducting these important experiments. I hope next season may see them at work, and that the Government model farms alluded to in a later paragraph may, under their superintendence, furnish accurate data regarding cotton experiments.

77. Before leaving the subject of exotic cotton, I would desire, if I should appear to have summed up rather unfavourably to its adaptability to Central India, to assure the Resident that, in the matter of cotton improvements, I am not in the least prejudiced either in favour of or against the exotic variety. I am anxious for every

reason to give exotic cottons a fair trial, and if I can see that any one of them is likely to succeed, I will spare no trouble to extend its cultivation throughout the whole of the cotton growing country under my charge. But the Resident will, I think, be of opinion that, as yet, no such results have attended the experiments as would justify my urging the exotic seed on the attention of the people. I can assure the Resident that it is to me personally no small disappointment that I

Personal regret at the small amount of success that has attended experiments with exotic cotton.

have not as yet felt myself justified in attempting to extend this class of cultivation. Nothing would have been more gladsome to me than to have been able to report now, that the foreign cotton sown in these Provinces was a decided success, that the people were taking to it readily, and that during the year under

review so many thousand acres of land had been sown with exotic seed. I am confident that if I had been able to make such a report, I should generally have been considered to have achieved a great success, and that credit would have been reaped in proportion. But I honestly confess that I am unable to show any such results, and that, at present, I would oppose any attempts to extend the cultivation of exotic cotton beyond the experiments undertaken at the expense and risk of Government, which are now being conducted. As Mr. Saunders knows what amount of interest I have taken in my new duties, and whether I have or have not devoted myself to my work, he can judge whether the non-introduction of great quantities of exotic seed has resulted from any prejudice against that class of cotton, or has arisen from a conscientious feeling that, at present, at least, it would be unfair to the people, and of a positive disadvantage to the country, to promote its extension.

78. At present my endeavours to improve the cultivation of cotton are directed to the following measures :—

Measures undertaken this season. I.—The improvement of the indigenous plant; of the advantage likely to arise from which there can be no doubt.

II.—Experiments with exotic cottons to ascertain whether any one of the many varieties is adapted to the climate and the soil of Central India. I hope this action will be approved by the Chief Commissioner of the Central Provinces and by the Resident at Hyderabad.

SECTION V.

MEASURES ADOPTED FOR THE ASSISTANCE OF THE TRADE.

79. The measures that have been taken during the year under

Measures taken to assist the trade.

report to smooth the way for the advance of the trade in these Provinces have now to be noticed.

80. The first matter that called for my particular attention after

Arrangements of the G. I. P. Railway Company for carrying the Cotton Traffic.

joining my appointment was the arrangements made by the Great Indian Peninsula Railway Company for carrying away the great cotton traffic that poured into their stations in the Central Provinces and the Berars during the

cotton season. I am confident that the Resident will understand that I do not from choice return to this not very agreeable subject, and that he will believe that I would rather retain only the pleasant recollection of the firm and consistent support that was throughout accorded to me by Government, than refer to the trouble and annoyance that was caused during the season of 1867 by the imperfect arrangements of the Great Indian Peninsula Railway Company in these Provinces. Still, as the remembrance of what we have passed through may help to render us less inclined to return to a state of things, which occasioned nothing but loss and anxiety to all concerned, and as without painting in the shades cast by last season's management, it would not be possible to bring out in proper relief the improvements that have this year been effected by the Traffic Department of the G. I. P. Railway, I feel that I cannot well avoid a subject which I would otherwise only too willingly pass by unnoticed.

81. The difficulties with the Railway arose after this manner. In these Provinces the cotton season does not commence until the close of

Difficulties with which the Railway Company had to contend.

the year, and the large business done, amounting as has already been shown, to about 250,000 bales, or 46,000 tons, has to be condensed into a short season, lasting hardly more than four months. The sudden strain upon the Railway

Company is immense, and, in all fairness, every allowance should be made for the very exceptional and difficult character of the traffic. During the months of January, February, March, and April the whole mass of the year's crop is poured into the Railway Stations; and as, until this season, nearly the whole of this cotton was presented in loosely packed "dokras" or bags, in the preparation of which the economy of space was utterly disregarded, the Railway Company, with an insufficient rolling-stock, and inadequate arrangements, were unable to carry away the traffic as fast as it arrived, and by degrees the cotton awaiting despatch accumulated in great masses at each Railway Station. It was not difficult to calculate the time that would elapse

from the commencement of the season to the inevitable "block" on the line. It was the old sum of the cistern with the two pipes, of which

The periodical blocks.
The supply-pipe is larger than that which carries off the water. In the case of the cotton traffic, the daily supplies arriving at the stations being much in excess of the quantity that it was possible to send off by train each day, the yards adjoining the railway premises, which represent the cistern in the sum, soon became full to overflowing, and it was obvious that this state of things must continue until either the drain-pipe of the traffic arrangements was improved, or until the supplies ceased, and the mass, which in the interval had been collected, had time to run off. As there was no wish that there should be a falling off in the supplies, it was necessary, in order to prevent the block, which was attended with many very serious inconveniences, that every effort should be made to remove the difficulties that beset the transport of the cotton to Bombay, and to assist in this object I have done my very best both directly and indirectly during the past and the present season.

S2. And as a great deal of my time has been devoted to this duty,

I would desire to explain of what great importance and concern the existence of satisfactory arrangements for the transport of the crop from the interior to the coast must always be to the Cotton Commissioner. The merchants at Bombay, upon whom our traders chiefly

Satisfactory arrangements
for the transport of the crop
of great importance to the
Cotton Commissioner.
depend for their custom, require in their transactions, not only that the cotton should be of a certain quality, but, above all things, that there should be some certainty of its being *delivered punctually*, so that there may be no delay in supplying their constituents at home. If regularity in the delivery of our cotton cannot be ensured, then the merchants will of necessity avoid, what is called the "up-country"

"trade," and the cultivators, and these provinces will be the sufferers. Last year when, during the cotton block, I was advocating the system of purchasing cotton in the districts, to the advantages of which I shall refer in detail in a

Reasons for this.

later paragraph, I was answered by the remark, that it would be about as safe to make a contract for future delivery with King Theodorus, (who was then prominently before the public) as to buy cotton up-country which might be detained for mouths at the Railway Stations. And, at that time, there was unfortunately a grim truth in the remark, which admitted of but little reply. If then the cotton was not carried down with regularity from our Provinces, there was a possibility of the merchants deserting us, and sending their orders to quarters from which cotton could be procured with greater ease and certainty. It will then be understood how great an interest the Cotton Commissioner must have in the proceedings of the Railway Company. In these Provinces, indeed, the railway is the back-bone of the cotton trade, and as the now improved traffic arrangements give the promise of a long and vigorous life to the up-country business, so would a relapse into the unhealthy condition of last season's proceedings eventually succeed in paralyzing the great and important industry of this part of India.

83. But there were other reasons which made it incumbent on the Cotton Commissioner to use his best endeavours to prevent the delay of the cotton at the

Irregularities consequent on the cotton block. Railway Stations. The accumulations of cotton at the yards gave rise to irregularities and abuses

which I was instructed it was my particular duty to use my best endeavours to prevent. These cases were not easily susceptible of proof, and even had they been brought home to the parties, it was doubtful whether, in consequence of a defect in the law, since remedied, these offences were punishable under the Penal Code. But that irregularities were committed, and that dealers, in order to get their cotton sent forward, paid sums of money over and above the charges for freight, I have every reason to believe. Indeed, it would have been more than extraordinary if, under all the circumstances, with the immense importance that it sometimes was to the dealers to get their cotton down to Bombay to meet some sudden turn in the market, there had not been found persons who were willing to give sums of money, and ill-paid servants of the Company who succumbed to the great and unfair temptations that were continually offered. The payments, viewed in whatever light, helped to increase the many charges with which our inland cotton trade is

already too heavily weighted, and which I always consistently laboured to reduce. And in addition to the above serious

Public scandal arising therefrom, there was the public scandal which such an unsatisfactory state of things produced. Rightly or wrongly the people of

this part of the country, who are not so advanced as those parts of India where the railway is an institution of some standing, believed that irregularities were practised; and as from the interest that has always been evinced by Government in the progress of the line, and from the part taken by the Officers of Government in taking up land for the works, the people have come to consider the Government to be more directly connected with the management of the Railway than perhaps is really the case, these scandals reflected injuriously upon the Government, and were, I may say, politically objectionable. I hope then enough has been said to show that it was no unimportant part of the duty of the Cotton Commissioner to try and prevent the accumulation of cotton at the Railway Stations.

84. What attempts were made in this direction will be found described in paragraphs further on, but it was obvious that there must be considerable delay before the stocks could be reduced, and in the meantime arrangements for ensuring the safety

Measures taken to protect the cotton collected at the Railway Stations. of the cotton which covered many acres of ground near some of the Railway Stations, and for ensuring the despatch of the goods with more fairness and regularity, demanded immediate attention. And in attempting to arrange for the safety of the cotton, I received the most cordial assistance from the Officers of the Railway Company on the spot, particularly from Mr. Swan, who deplored as much as I did the existence of the state of things which he was powerless to remedy, and for which he could not with fairness be held responsible. So early as November 1865, the great inconveniences arising from the management of the cotton traffic had presented themselves to Mr. Cordery, C.S., then Deputy Commissioner of Akola, in which district the Stations of Sheagaum and Nandoo, the most important cotton outlets on this part of the line are situated, and under his direction a very excellent system of "Government Cotton Yards"

Mr. Cordery's system of Government Cotton yards. was introduced. Soon after my appointment, the Resident at Hyderabad was so good as to approve of the management of these yards, which had hitherto been in the hands of the district authorities, being vested in the Cotton Commissioner, whose presence on the Railway line

during the season would, it was believed, enable him to undertake the duty without inconvenience; and in January 1867 Mr. Cordery's

system, which had hitherto been confined to the

* Control of the yards
vested in the Cotton Com-
missioner. Berars, was extended to the Central Provinces,

which the Great Indian Peninsula Railway

had recently entered. The cotton yards in the

Central Provinces also were placed under my superintendence, and until the month of April 1867 the management of these yards occupied a very large share of my time, and were the cause of no little trouble and anxiety.

85. Mr. Cordery's system had for its objects—

I.—The safety of the cotton detained.

System of arrangement
in the cotton yard.

II.—The prevention of unfair practices in

the despatch of the cotton.

For this purpose a large plot of ground belonging to Government was marked off at each Railway Station, and in this "yard" the whole of the cotton brought for despatch by railway, and which the Company were not prepared to send off at once, was stacked. The system which at first prevailed was to make out a list of all the cotton detained, and to give the owner of each lot a certain number of waggons in proportion to the quantity of cotton held by him. In the confused state in which Mr. Cordery first found matters, it was almost impossible to ascertain with any accuracy, how much cotton belonging to each party was really on the ground, and thus false returns were often presented and additional waggons thereby unfairly obtained. The yard was accordingly marked off into squares or sections, capable of holding each a certain number of bales according to the numbers of tiers in which they were piled. Thus a square of the dimensions shown in the Diagram (III.) held exactly 1,000 bales in 20 rows of 50 bales each, and as this plan of piling the bales was observed throughout all the yards, it was not difficult to ascertain the number of bales belonging to each dealer, and the number of waggons to which he was rateably entitled. By counting the squares too, the number of thousand bales remaining in the yard could easily be arrived at, and every evening it was possible to form a very fair idea of the impression made upon the mass during the day by the Railway Company. To preserve order and system, and to protect the cotton against accident and theft, a Police guard was stationed in the yard. The management of the yard was vested in a Clerk, who prepared lists of the cotton detained, and whose Register contained an interesting record of the traffic. To cover the charges on account

जाहीरखचर.

जाहीरखचर.

व्यापारी व दुसरे लोकाचा कापूस रेल्वे स्टेशनावर फार वेळ पर्यंत राहत असेल यांच्या सोई किंतु रेल्वे स्टेशनाजवळची सरकारी जागा तो कापूस साठून ठेवण्याचे कामासाठी निवेदल.

अया रितीने साठविलेल्या कापसाचर दर दोकड्या मार्गे अरधा आणा फी प्रमाणे चापरलेल्या जिमिनिच्या भाड्या बहलू पैसा घेतला जाईल. अणिं या प्रकारे जो पैसा जमेन तो सदरहू जांगेची व्यवस्था व वेत ठेवण्याच्या खर्चाकडे लाविला जाईल.

सदरहू जांगेत ठेविलेला कापूस मालकाच्या ताड्यात राहील, आणि त्याचे जोखम त्याचेच शिरावर राहील, व त्या मालकानीं तो मूळ अपल्या ताड्यात निट ठेवण्याची चांगली व्यवस्था केली पाहिजे. सदरहू जांगेची व्यवस्था ठेवण्याकिंतो वेळांवरीतो वेळांवरीजे नियम केले जातील ते त्या मालकास लागू होतील.

सर्व लोकानीं हे पैक्के लक्षात ठेवावे की, अशा जिमिनीत ठेवलेल्या काप-सास अभियुक्ते, अपघातप्रमुळे, सुरक्षितप्रमुळे, अथवा दुसरे कोणतेही कारण-मुळे कोणतेही प्रकारचा अपाय झाल्यास किंवा तो गमाचला गेल्यास त्याजवळल सरकाराकडे कोणतेही प्रकारचे जोखीम नाही.

हारी रिवेट कनाक,

ज्यानेचीरी सन १८६९.

मध्य प्रात आणि वराड येथील ज्यानेचारी सन १८६९.

कापसाचे कमिशनर.

व्यापारी व दुसरे लोकाचा कापूस रेल्वे स्टेशनावर फार वेळ पर्यंत राहत असेल यांच्या सोई किंतु रेल्वे स्टेशना जवळची सरकारी जागा तो कापूस साठून ठेवण्याचे कामासाठी निवेदल.

आशा रितीने साठविलेल्या कापसाचर दर दोकड्या मार्गे अरधा आणा फी प्रमाणे चापरलेल्या जिमिनिच्या भाड्या बहलू पैसा घेतला जाईल. अणिं या प्रकारे जो पैसा जमेन तो सदरहू जांगेची व्यवस्था व वेत ठेवण्याच्या खर्चाकडे लाविला जाईल.

सदरहू जांगेत ठेविलेला कापूस मालकाच्या ताड्यात राहील, आणि त्याचे जोखम त्याचेच शिरावर राहील, व त्या मालकानीं तो मूळ अपल्या ताड्यात निट ठेवण्याची चांगली व्यवस्था केली पाहिजे. सदरहू जांगेची व्यवस्था ठेवण्याकिंतो वेळांवरीतो वेळांवरीजे नियम केले जातील ते त्या मालकास लागू होतील.

सर्व लोकानीं हे पैक्के लक्षात ठेवावे की, अशा जिमिनीत ठेवलेल्या काप-सास अभियुक्ते, अपघातप्रमुळे, सुरक्षितप्रमुळे, अथवा दुसरे कोणतेही कारण-मुळे कोणतेही प्रकारचा अपाय झाल्यास किंवा तो गमाचला गेल्यास वाजवळल सरकाराकडे कोणतेही प्रकारचे जोखीम नाही.

हारी रिवेट कनाक,

मध्य मात्र आणि वराड येथील
कापसाचे कमिशनर.

No. 1716

No. 1716

NANDOORAH COTTON YARD.

NANDOORAH COTTON YARD.

नाम	नाम	दोकडा.	दोकडा.
रुपये	पौंचले.	तारीख	मोहोर.

रुपये पौंचले. तारीख मोहोर.

रुपये पौंचले.

रुपये पौंचले.

रुपये

मोहोर.

मोहोर.

of the establishment kept up in the yards, and the expenses of working them, a small fee or ground-rent was levied on the cotton stacked.

86. During my stay at the cotton yards in the season, I had opportunities of elaborating this system somewhat, and of supplementing the arrangements for the prevention of fire and accident. A system of cheques or passes was suggested and

System of cheques proposed.

approved, to assist in ensuring the despatch of the cotton in the order of arrival. The cheque, which is in triplicate, is in the form of a receipt issued to each owner of cotton on his bringing his goods to the yard, and on the payment of the fee already alluded to. The cheque was given to the dealer in duplicate—one copy for delivery to the Station Master, the other as a receipt for payment of the fee. It bears a serial number, and according to the number of this cheque, which, as already mentioned, is issued to owners in order of the arrival of the cotton at the yard, the holder can claim to have the number of bales therein entered sent down by Railway. Thus, the holder of the specimen cheque No. 1,715 of the Nandoorah cotton yard, on presenting his pass to the Station Master, would claim to have his 500 bales despatched before the holder of No. 1,716. The counterfoils kept in the cheque book, and which correspond with the passes, form a good check on the number of bales received and despatched daily from the yard. On the back of the pass is printed a copy of the notice that is hung up in the yards, by which the object of Government in establishing the yards is notified, and the non-liability of Government for any damage or loss that may occur to the cotton stacked on the premises is distinctly explained. A copy of this notice, of which the Honorable Mr. Bayley, the Advocate General, Bombay, who was consulted on the subject, was good enough to approve, will be found in Appendix C of this report.

87. The yards were also supplied with fire-engines and buckets and tanks for water placed at regular intervals,

Yards supplied with Fire-engines, &c. and the Police guards were practised in the use of the engines. Many minor arrangements were made for ensuring the safety of the

property stored on the Government ground, and the Inspector and myself periodically visited the yards and saw that everything was in order. Later in the season sidings were run into the yards from the main line of Railway, weigh bridges were erected, and other arrangements made by the Railway Company, which materially assisted the despatch of the cotton.

88. The stations on the line at which Government cotton yards were established are given in the margin.

Cotton yards established under this system.

Nagpore,	Akola,
Wardah,	Shegaum,
Poolgaon,	Nandora,
Chandoor,	Mulkapore,
Budnaira,	Boorhanpore,
Moortizapore,	Khundwa.

At some of the smaller stations, where cotton is not brought in in large quantities, the precaution did not appear necessary, and was not adopted. Of the large quantities of cotton detained at the Railway stations, and consequently thrown on the

charge of the Government Officers during the season of 1867, a sufficiently correct idea will be given by the accompanying Diagram, (IV.) which represents the number of dokras stacked in the yards in the Central Provinces and the Berars during each fortnight of the months of January, February, March, April, and May 1867.

Quantity of cotton stacked in the Government cotton yards in 1867.

February, March, April, and May 1867.

Being in charge of these yards and being to some extent responsible for the safety of the cotton stacked there, (which as the above table shows amounted at one time to 596,684 dokras,) it will be believed that the charge gave me no little anxiety, and I think I may on that account be excused for having taken an interest in the working of the Railway, and for having urged, sometimes rather warmly perhaps, the improvement of the traffic management. Luckily, however, notwithstanding the fiercely hot season, the carelessness of natives and the thunder-storms, during which the cotton was more than once struck by lightning, but one fire occurred in the yards during the year 1867, and in 1868 not a single accident has happened. Next year, with the improved traffic arrangements, it may, I hope, be possible to dispense with the yards altogether, and this for many reasons I am willing to do, if everything goes well. Still, whether they go or remain, it will, I am sure, be admitted that the yards established under Mr. Cordery's system have been found to be of great comfort and convenience to the trade, and I may mention that this opinion has been expressed to me by many merchants, European and Native, connected with these Provinces and Bombay.

89. In concluding this notice of the cotton yards, for the success of which I do not wish to take to myself any credit, save that of having done my best to work out the very excellent system which Mr.

Sir Richard Temple's remarks on the cotton yards.

Cordery had introduced, I hope I may be

excused if, in justice to those who worked with me, I quote the testimony of the Resident to the arrangements made in the yards for the convenience of the traffic. In his Administration Report for the Berars for 1866-67, Sir Richard Temple wrote:—

“A special Commissioner has been appointed to watch over all affairs relating to cotton, and to further, so far as may be legitimately possible, all interests connected therewith. This measure was urgently called for, as the inability of the Railway Department to carry off within reasonable periods the accumulated masses of cotton, and the demoralizing abuses to which these delays gave rise, were becoming serious. The efforts of the Railway Company for the mitigation of these evils have been partially, though not yet wholly successful. The great yards, where the cotton is waiting to be laden on the Railway waggons, and where an astonishing sight may be seen for many consecutive weeks, of acres upon acres covered with cotton bales, are now regulated by the Cotton Commissioner, and divided into squares and streets, every compartment of bales having its administrative apparatus,—watchmen, fire-engine, flags, and the like,—all complete, and every one of the many thousands of bales entered in a register and awaiting its turn for loading.” Again, “The system of stacking-yards for cotton in immediate proximity to the Railway Stations, which met the approval of the Supreme Government in 1864, has been extended to all the new stations, and been excellently worked by the Cotton Commissioner. By these means an independent registration of all bales is ensured immediately after their arrival within 200 yards of the Station. This acts as an effectual check on any unfair or corrupt allotment of waggons, whilst at the same time it affords the opportunity for the collection of valuable statistics. Moreover, the convenience accruing to large and small dealers alike in obtaining distinct yards for their consignments, far more than compensates them for the trifling fee of half an anna per bale, by which all expenses of the yard establishments are more than covered. I have repeatedly had ocular proof of the success now attending these measures, and the Cotton Commissioner, to whom the care of the yards has been transferred, deserves much credit for the order and completeness of the arrangements made.”

This testimony is felt to be particularly valuable, because the Resident attached much importance to this part of the Cotton Commissioner’s duty, and on more than one occasion visited the yards and subjected them to a somewhat critical inspection.

90. The annexed plan of the cotton yard at Shegaum, showing

Plan of the Cotton yards. the arrangements made at this, the largest cotton station of these Provinces, may be of interest, and may perhaps be useful in the event of it being found necessary to establish similar stack-yards in other parts of India.

91. An indirect advantage, arising from the establishment of these yards, was the preparation of periodical statements showing the quantity of cotton detained at each yard, and the number of bales exported during the week, which by permission of Government, were submitted periodically to the

Periodical publication of statistics of the cotton detained on the Railway.

Chamber of Commerce at Bombay, by which body they were communicated to the newspapers. These statements, besides keeping the public informed of the quantity of cotton that had to come forward, to some extent "gibbeted" any not very creditable block on the line. The Chamber of Commerce have begged that these returns may not be discontinued, and they will be furnished next season as usual.

92. While in the meantime precautions were taken for the safety of the cotton detained, the importance

Measures taken for assisting the traffic. of reducing the accumulations by carrying off the traffic as fast as possible was not lost sight of. To return to the old sum of the cistern, it

is obvious that the quickest and best plan of emptying the reservoir is to enlarge the drain-pipe. This, however, chiefly depended upon the action of the Railway Company in matters with which I had no immediate concern. But yet another plan presented itself for reducing the block, by increasing the daily carrying power of the Railway Company. The chief difficulty with which the Company had to contend was their comparatively inadequate rolling-stock. The loosely packed dokras soon filled up a train, and their departure made but little impression on the mass of cotton in the stack-yard. If, as Captain Sherard Osborn had strongly urged, the Native merchants could only be persuaded to press their cotton, then the economy of space thereby effected would, it was clear, enable the Railway Company to carry a much larger quantity of cotton in a smaller space, and the inconvenience of the limited rolling-stock would to some extent be reduced. One of the most important measures, then, towards relieving the cotton blocks, and the many objections arising therefrom, appeared to be to encourage and to urge to the utmost the erection of machinery for pressing the cotton. And this as far as it was possible was steadily done. The European merchants had already

seen the advantages of the system, but it was not easy to impress upon the natives the importance of the measure, and last season but little progress was made by them in setting up presses; and even the offer of sites in the cotton yards, free of charge, had but little effect upon them. This season the advance made in the matter of presses has

been most marked, and has exceeded even my

Presses but little used by native merchants in 1867. most sanguine expectations. The annexed table shows the number of half and full-presses

in the Central Provinces and the Berars during the two seasons; and I may add that the great increase is chiefly attributable to the good example set by a few enterprising European gentlemen last season. The native merchants

Large increase in the number of presses in 1868. having had substantial proof of the advantages of the system were not slow to follow the example of last year, as the returns will show.

This season indeed I saw nearly every place of any importance supplied with presses, and not only were a very large number of presses erected during the year, but they were so distributed throughout the cotton country as to be of the greatest relief to the traffic.

93. The system chiefly in use is that which goes by the name of "half-pressing." For many reasons the "half-press" is the class of machine best adapted to the up-country trade in its present state. The

The Half-press. bale, though it takes up much less room than the dokra, and thus, when generally adopted, helps to prevent the chance of a block on the line, is not finally packed for export, and can be opened and examined in Bombay before being shipped to Europe. The half-presses generally in use are a press invented by Major Hassard, and the Guzerathee press. Each press of this description will turn out about 50 bales a day. If worked day and night a press can turn out as many as 100 bales.

94. The full presses differ from these smaller machines. The bale turned out from the full press is of the following dimensions:—

$$\text{Ft. } 3\frac{1}{2} \times 1\cdot 4 \times 1\cdot 11 \text{ inches} = 3\frac{1}{4} \text{ cwt.}$$

and is not as a rule opened in Bombay, but is ready for export. As will be mentioned later on, there is a great hope that this system of packing cotton in the interior may, as the up-

The Full-press. country trade becomes more and more popular, be considerably extended. At present, one of the objections to the general adoption of this system, is, that, owing to

*Statement showing the number of Cotton Presses at work in the
Central Provinces and the Berars in 1867 and 1868.*

	FULL PRESSES.		HALF PRESSES.	
	1867.	1868.	1867.	1868.
CENTRAL PROVINCES.				
Hingunghat.....	1	5	6	10
Wurdah .....	....	....	5	2
Arvee .....	....	....	....	5
Total.....	1	5	11	17
BERARS.				
Oomraotee .....	....	4	12	21
Budnaira .....	....	2	4	....
Akola .....*	....	....	....	3
Sheagaum.....	....	2	6	16
Khangaon	2	6	10	25
Akote .....	....	2	....	8
Karinja .....	....	....	....	2
Julgaon.....	....	....	....	2
Moortizapore .....	....	....	....	4
Total.....	2	16	32	81
Grand Total for the Central Provinces and the Berars.....	3	21	43	98

Total 1867— 3 Full Presses, 43 Half Presses = 46

Total 1868— 21 do. 98 do. = 119

(Signed) H. RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars.

Dated Camp, Khangaon, 28th June 1868.

the elasticity of the cotton during the scorching winds of the Berar hot weather, it is not possible to compress more than from 3 cwt. to $3\frac{1}{4}$ cwt. of cotton into a bale.* In the moist climate of Bombay $3\frac{1}{2}$ cwt. or 392 lbs. more of cotton can be compressed into the same space; and as the shipping freight to Europe is charged according to the measurement of the bale, the charge on the light up-country bale is considerably enhanced. This loss is, however, more than counterbalanced by the great saving in railway freight to Bombay on pressed cotton. Arrangements will, it is hoped, soon be made for improving the style of bale pressed up-country.

95. In 1867 the only full-presses at work were the two belonging to the Mofussil Company at Khangaon, and one set up by Messrs. Warwick and Co. at Hingunghat. The following full-presses have been set up and worked for the first time this season.

Mofussil Press and Ginning Company (Limited).

Sheagaum	2	worked by steam power.
Oomraotee	2	do.

Deccan Company.

Khangaon	2	worked by steam power.
Budnaira	2	do.

Full-presses erected this season.

Messrs. Roghé and Cb.

Khangaon.....	2	manual labour.
Akote	2	
Oomraotee.....	2	

Messrs. Warwick and Co.

Hingunghat.....	3	manual labour.
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This season the system laboured under all the difficulties and disadvantages with which a new system is always beset. The hoops burst, and many other trying accidents occurred, which the experience acquired this year will next season help to prevent.

96. Presses have also, I understand, been erected at Jubbulpore for the purpose of packing cotton brought for Presses at Jubbulpore. despatch to the East India Railway; and this measure will prove of great assistance to the trade of the Nerbudda valley.

97. The annexed statement shows the number of dokras, half-

* Since the above was written, presses have been set up at Khangaon, which press $3\frac{1}{2}$ cwt. of cotton net.

pressed bales and full-pressed bales, exported from these Provinces during the year 1867, as compared with the quantity for 1868. The difference will doubtless appear very striking.

Taking 2 dokras to the half-pressed bale and 3 to the full-pressed bale, the proportion of the crop of 1867, exported in loose bags, in half-pressed bales, and in full-pressed bales, during that year was :—

	<i>Dokras</i>	<i>Half-pressed.</i>	<i>Full-pressed.</i>
1866-67	85 per cent.	13 per cent.	2 per cent.

In 1868 the proportions assumed the following forms :—

	<i>Dokras</i>	<i>Half-pressed.</i>	<i>Full-pressed.</i>
1867-68	27½ per cent.	55½ per cent.	17 per cent.

and the results of the three years may thus be contrasted. In 1866 the whole of the cotton went down to Bombay in loose bags. In 1867 the system of pressing up-country was commenced, and during that year 15 per cent. of the cotton crop was sent down in pressed bales ; the remaining 85 per cent. still going in dokras. In 1868 the number of full-pressed bales alone represented 17 per cent. of the exported crop ; the full pressed and half-pressed taken together representing nearly $\frac{3}{4}$ of the whole crop, and the loose cotton sinking to $\frac{1}{4}$ of the exports.

98. Another measure adopted with the view of accelerating the loading and despatch of the cotton, was the

Sidings run into the cotton yards. Last year one of the disadvantages under which the traffic laboured was the inadequate

“siding accommodation” at some of the most important stations ; and even where no deficiency in this respect existed, inconvenience and delay was often caused by the distance which the cotton had to be carried from the stack-yard to the railway waggons. Mr. Rushton, when he held the post of Agent to the Company, was good enough to consent to lay down sidings into the cotton yards, and the Engineering department of the Railway pushed on the work so rapidly, that this season the Government yards at the undermentioned important stations were all supplied with “cotton sidings” :—

Nandoorah,

Sheagaum,
Moortizapore

Budnaira,
Wurdah.

The convenience to the traffic resulting from this system has been great. By it waggons were brought home to the piles of cotton stacked in the yards: and the porters, having to carry the cotton

a much shorter distance than before, were able to load up the waggons with much greater rapidity. The pressed bales were also saved much of the knocking about (rather trying to their lashings) which the former system entailed, and the Railway yards were spared the crowding of the siding space, which caused some embarrassment last season. It was also an advantage that the waggons loaded with cotton should remain until ready for despatch within the comparatively safe precincts of the cotton yards, instead of being left to stand, as heretofore, in the proximity of every passing train and steam-engine, from the sparks of which so much danger was to be apprehended.

99. In the meantime the Traffic Officers of the Railway Com-

pany were doing their best, by the introduction of many improvements in the working of the line, to prevent the recurrence during 1868 of that great inconvenience to the cotton traffic, referred to in preceding paragraphs. I wish

I had it in my power to describe, as fully as the subject deserves, the great exertions made by Mr. Knox, by Mr. Swan, and the Officers of the Traffic Department in this respect during the year under report. Fortunately, however, the results speak for themselves, and the table attached to this paragraph will show the extraordinary change that took place during the season of 1868, in the manner of carrying the cotton on the Great Indian Peninsula Railway. The traffic may, perhaps, have been relieved to some extent by the presses and by the cotton sidings, but after watching the arrangements somewhat closely, I am inclined to believe that the Traffic Managers had the department so thoroughly in hand, and the measures adopted this season were so well considered, and that even had the cotton poured into the stations in loose *dokras*, instead of in the neatly packed bales, there would have been no recurrence in 1868 of the confusion and trouble which attended the cotton blocks of former years.

Excellent manner in which the cotton traffic in 1868 was managed.

The marked improvement in carrying off the traffic was doubtless to a considerable extent owing to the increased rolling stock, the new crossing stations, through trains, and other arrangements of detail. Still, the results shown in the annexed table cannot but be considered as eminently satisfactory, and most creditable to the Department. And, as during the year 1867, I had on more than one occasion to complain of the great inconvenience caused to the public, and the labour and anxiety entailed upon myself, by the delay, without sufficient excuse, of large masses of cotton at the Railway stations, I think I may be permitted

to bear testimony to the excellent arrangements made this season by Mr. Knox, and the Officers of his Department, and to the thoroughly satisfactory manner in which the cotton was carried by the Railway Company. With the exception of a little difficulty which accompanied the introduction of the new waggon rate, and which was speedily settled, everything worked perfectly smoothly, and satisfactorily; and I really do not think that any one of the many merchants connected with the cotton trade had, this season, the least ground of complaint against the Company. For myself, I may say that instead of the cotton yards being full to overflowing, with sometimes as many as 115,000 bales exposed for months to all the dangers of fire and theft, as was the case in 1867, not a single bale was delayed during 1868 in any one of the cotton yards through any fault of the Railway Company. The returns forwarded to the Chamber of Commerce sometimes showed that a few bales were stacked in the yards; but those were generally detained there, at the wish of their owners, in order to complete consignments, or with a view to the cotton being passed through the presses erected in the yards.

100. In fact, this season, instead of it being necessary for me to urge the Traffic Department to carry away cotton detained at the stations, I sometimes found my assistance required by the Railway Company in order to persuade the merchants to load up the cotton stacked in the yards.

Cotton purposely detained in the yards by dealers.

The yards were found by many dealers to be so convenient that large quantities of cotton, which the owners did not intend to despatch by railway were sometimes brought there for safe custody. Very often too, the owners, awaiting some turn in the Bombay market, would purposely delay the cotton in the yards. As these yards were established with the sole purpose of assisting the traffic, and as the system of delaying the cotton there was likely to produce much inconvenience, it was notified, at the request of the Railway Company, that any one detaining his cotton in the yards, after the receipt of intimation that the Company were ready to carry it away, would be charged at an enhanced rate for the space occupied by the cotton stacked by him. The Notification, approved by Government, will be found at Appendix B of the report.

101. I must also mention that, not only were the arrangements of the Railway Company such as that the cotton was never detained in the yards through any fault of theirs, but that, thanks to the improved traffic arrangements, the cotton trains were pushed on to Bombay with much fewer stops.

Passage of trains between Cotton Stations and Bombay reduced.

O.

STATEMENT showing the number of Full-pressed Bales, Half-pressed Bales, and Dokras exported from the Central Provinces and the Berars, during the season 1867-68, compared with the exports in 1866-67.

	FULL-PRESSED BALES.	HALF-PRESSED BALES.	DOKRAS.
1867	5,088	53,181	680,614
1868	96,604*	147,444	141,811

* 3,000 bales exported from Hingunghat to Jubbulpore.

(Signed) H. RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars
Dated Camp, Khangaon, 28th June 1868.

pages, and much less delay than in former years. During 1867 the troubles of the unfortunate dealer, whose cotton had been detained for weeks at the Railway Station, did not cease with the bales being loaded on the waggon. The trains were sometimes detained by some block on the line for days *en route*, and consignments have been known to take as many as 12 days between Sheagaum and Bombay. This season, cotton, sent away from Khaugaon in the evening, would be loaded and despatched from Nandoorah the next day, and would be delivered in Bombay three days later, or within four days of the bales leaving the market here. If my views regarding the importance of efficient Railway management to the stability of the cotton trade are correct, then all interested in the trade of these Provinces are, indeed, greatly indebted to Mr. Knox and the officers of his department, for the great improvements effected during the season 1868.

102. I have now to refer to some other measures, all more or less directly connected with the comfort and convenience of the cotton trade, that have been adopted in the Central Provinces and the Berars during the period under report. In

Measures adopted in the
Central Provinces for the
convenience of the cotton
trade.

regard to these matters in the Central Provinces, I confess I have always felt that the newly appointed Cotton Commissioner laboured under a considerable disadvantage. As already explained in a previous paragraph, the Administration of the Central Provinces, during the years preceding my appointment, had always evinced so lively an interest in this important trade, and the District Officers had busied themselves so successfully in meeting the requirements of merchants in the cotton-growing districts, that the wind had been completely taken out of my sails. Although it has not been possible to initiate much, still I think I may venture to say that the convenience of the public in the markets of the Wurdah valley, where cotton is chiefly grown, will be found to be well cared for, and that the arrangements there will bear comparison with those in any part of India.

103. The advantages that arose from Dr. Forbes' visit to the

Dr. Forbes' recommen-
dations under this head.

Wurdah district have already been referred to. That gentleman, besides recommending the improvements in the cultivation of the cotton plant, and experiments with exotic seed, which

have already been noticed, directed particular attention to the importance of providing better accommodation at the cotton markets, and of introducing improvements into the then existing methods of preparing

the cotton for market, and packing it for export. Dr. Cullen, the gentleman who first held the appointment of Superintendent of Cotton Affairs, besides devoting, as has already been shown, much attention to the improved cultivation of the plant, was able, with the assistance of the Deputy Commissioner, to carry out the reforms which Dr. Forbes had so usefully advocated for the relief and convenience of the trade. By Mr. W. B. Jones, C. S., the Deputy Commissioner of the Wurdah district, who, on Dr. Cullen's departure for England, took charge of the Superintendent's Office, in addition to his own duties as head of the district, the interests of the cotton trade in Wurdah were most carefully watched and advanced. It was with the aid of those officers that Hingunghat, Deolee, Arvee, and Sailoo, were provided with cotton markets well arranged, and well regulated, which have since been taken as the model for the markets established in the Berars. Here, too, accurate balance scales of improved manufacture were introduced instead of the baskets and rough stones which attracted Dr. Forbes' attention on his visit to Arvee. Experiments were made

with various sorts of machinery sent out from
Exertions of Dr. Cullen and Mr. Jones, C.S. England, and the advantage of pressing cotton
for export was demonstrated to the people by
the introduction, at the expense of the Local Fund Committee, of some
half-presses, which were in great request during the greater part of the
busy season of 1867. With the new Civil station of Wurdah, too, had
sprung up a cotton market,—not a large one perhaps,—but one which,
considering the short time it has been established, shows signs of
success. Thanks to these praiseworthy measures, I have not had
much to do in the matter of introducing improvements into the cotton
markets of the Wurdah district, and my efforts there, for this reason,
have been chiefly confined to trying to keep the arrangements on the
same footing as that on which Mr. Jones left them.

104. In the same manner, in the Chandah district, experiments
are so carefully carried out, and so much in-

terest is taken in the trade and its requirements
And of Captain Lucie Smith in Chandah.
by Captain Lucie-Smith, that I have not found
it necessary to devote so much of my time to
that district as might otherwise have been necessary.

105. To the cotton trade, the improvement of all means of communication, by which I mean not only the railway, and the branch roads leading thereto, but also the improvement of the means of communication by electric telegraph and by post, are of the very first importance. I have already tried to show what
Cotton roads in the Wurdah districts. *

has been done on the railway in this respect, and I have now to mention that the state of the roads leading from the cotton markets to the line, and acting as feeders to the traffic, is receiving due attention. When I had the advantage of accompanying the Chief Commissioner on his tour through the cotton districts in February last, Mr. Campbell evinced great interest in the matter of the completion of the roads between Wurdah, Deolee, and Hingunghat, and I am in hopes that the lines will be ready before the next cotton season commences. The Arvee road, too, has recently had the advantage of being inspected by the Chief Commissioner, and I am sanguine that its completion will not be deferred.

106. A station of the Government Electric Telegraph has been opened at the important cotton market of Hingunghat, which is now in telegraphic communication, not only with Bombay, but with Manchester and Liverpool. As matters now stand, a merchant sending an order to Hingunghat by electric telegraph

Exteusion of the Government Electric Telegraph to Hingunghat.

might have his cotton packed in full-pressed bales at that market, and landed in Liverpool within six weeks of the despatch of the order. A message sent by me from Hingunghat on Monday evening to Mr. Isaac Watts, the Secretary Cotton Supply Association at Manchester, reached that gentleman on the following Wednesday morning, and I believe that now messages are sent in a shorter time even.

If, as I have strongly advocated, the advantages of electric telegraphic communication be extended to the Berars, it may be hoped that the great cotton markets of Hingunghat, Oomraotee, Akote, Khangaon, Bombay, and Liverpool, may, before the season commences, be in communication with one another by electric telegraph.

107. The regular working of the post, too, is of great importance to cotton merchants. Mr. Hutchinson was

Postal arrangements at Hingunghat improved. good enough, at my request, to make arrangements for the more prompt delivery at Hingunghat of the Bombay mail, which during

the cotton season carries so many letters of importance to the merchants there.

108. The Godavery works have, as yet, hardly advanced sufficiently far to excite much interest in the Wurdah

The Godavery Works. district ; and the question as to whether, even if water carriage were available from Hingunghat to Cocanada, the cotton of the Wurdah valley would follow that route, in preference to journeying by the Great Indian Peninsula Rail-

way to Bombay, must for some time yet remain undecided. But the departure this season of Messrs. Warwick and Co.'s full-pressed bales to Jabbulpore *en route* to Cawnpore shows that it must not be taken for granted that the whole of surplus stock of cotton in the Wurdah valley must, of necessity, find an outlet by Bombay.

109. The discovery of coal on the Wurdah River near Chandah promises to be of importance to our cotton-growing districts.

Discovery of coal in the Chandah district. Last year I visited the seams in company with Mr. Melville, of the firm of Warwick and Co. at Hingunghat, but I

believe more valuable fields have since been found. Should the quality of the coal prove satisfactory, a fresh inducement would be offered to join Chandah with the Railway by means of a loop line, which would pass through Hingunghat and a rich well-cultivated country. The expense of bringing up coal from Bombay to Khangaon and Oomraotee is much felt by the owners of the cotton factories at those places.

110. A matter of some importance connected with Hingunghat trade, and to which my attention has been directed, is the practice of bringing the cotton to market from the villages in "*Jingahs*" or nets. In the west of Berar the net is unknown, its place being taken by the "*dokra*" or bag made of gunny. The meshes of the net are large, and when the cotton is noticed projecting through the openings, and covered

with the dust and dirt collected on the road,

The Jingahs used at Hingunghat. one feels inclined to undertake a crusade against the "*Jingahs*," and to introduce in their place

the gunny covering of Berar. But many who

possess considerable knowledge of the subject hold,—and my own experience has since taught me,—that the use of the *Jingah* does not cause so much damage to the cotton as might be supposed, and that it is after all not very inferior to the "*dokra*." Whatever objection there is to the *Jingah* appears on the surface. The net certainly does not protect the cotton from the dust, but, say they who advocate its use, the dust is easily beaten off from the outer crust. The *dokra*, on the other hand, does not afford any better protection. The dust penetrates *through* the gunny, and as, unfortunately, the very objectionable practice of damping the bagging (nominally to assist the packing, but in reality to increase the weight of the bale) is not unknown, the damp and dust cause the cotton beneath to cake together, and the stains and dirt are not confined to the outer crust, but sometimes penetrate to some distance into the heart of the bale. These objections do not apply with so much force to the "*Jingah*," which,

moreover, admits of the cotton being examined and sampled with ease, a facility not always afforded by the dokras, in which large stones have often with impunity been concealed. A practice has, however, sprung up of weighting these "*Jingahs*" in an unfair manner. The average weight of the net should not exceed 8 lbs.; but, by using thick rope or by dragging the net carefully through the mud, the weight may be indefinitely increased, and the buyer of cotton will probably not discover the trick that has been played on him until the seller has left, and no trace of him is to be found. A system of inspecting the *Jingahs*, and instructing the Dhers, who manufacture these nets, to make them of an uniform weight, might have a satisfactory effect, and the measure is under consideration.

III. The octroi duties, or the tax which cotton has to pay at the towns to which it is brought to market,

Reduction of the octroi duties. have been reduced, and I hope it may soon be altogether remitted. Cotton is not an article of consumption in the towns, but merely re-

mains in the market for a few hours or days, and is then sent to Bombay or Jubbulpore, as the case may be. Now that the tax on American cotton has been repealed, it becomes more than ever important to lighten as much as possible the burden that our inland cotton has to bear. In the race that "*Hingunghat*" must run with American cotton and the cotton of other parts of India for a place in the Manchester market, the weight of the octroi duties may, in the long run, tell against her. The octroi duty was perhaps not felt at the time that cotton fetched an extraordinarily high price, and it is a matter of congratulation that, in the days of plenty, part of the abundance was given towards building markets in the Wurdah district, and inaking other arrangements of which the cotton trade now reaps the benefit. But, with the present price of cotton, and the prospect of a fall in the market, it is certainly desirable to relieve the trade of a burden, which is of course felt more and more as the pulse of the cotton market sinks. Moreover, the Hingunghat cotton has to contend against a special disadvantage, which is felt by it more than almost any cotton in India,—the long land carriage and heavy railway freight to the coast. Great efforts are being made to improve the cotton of Khandesh and other districts in Bombay. Now Hingunghat not only pays an octroi duty, from which these cottons are exempt, but has also to pay for some 150 miles of railway freight which these cottons escape. If some relief is not given to Hingunghat, it may become a question whether this superior cotton will be able to hold her own against even the cottons of Western India.

MEASURES ADOPTED IN THE BERARS.

112. The numerous Memoranda submitted by me from time to time during my tours through the Berars, will have placed the Resident in possession of my views regarding the requirements of the cotton trade in those Provinces. I am very sensible of the support I have invariably received, and of the attention that has always been paid to my recommendations; and I have also to thank the District Officers for the vigour with which the works sanctioned by the Resident for the cotton markets have been pushed on and completed. The endeavours that have been made during the year under report to meet the requirements of the trade in the Berars will now be briefly recapitulated.

Measures adopted in the Berars.

113. Oomraotee, where a great cotton market is held, is the head quarters of the Commissioner of East Berar and of the Deputy Commissioner of the Oomraotee District, and, as might be expected, the wants of the trade at this place have always received proper attention. This season the Deputy Commissioner decided to build there a new cotton market, on the model of that established at Hingunghat by Mr. Jones. The new market, of the arrangements of which a plan is annexed, was completed and opened to the public in February last. A commodious square, in a very central and convenient locality, has been metalled, enclosed, and laid out with roads for the use of the cotton merchants.

New Cotton Market at Oomraotee.

Four masonry weighing platforms, containing scales, have been built within the enclosure, which is also provided with an excellent well, and water tanks in the event of fire, troughs for the use of cattle, &c. A guard house, for the detachment of Police stationed there during the season, occupies the centre of the square, which also contains a shed for the fire-engine, and other out-houses. Stowing places for cotton are ranged round three sides of the square, the fourth side being occupied by a building, which, when fitted up as a cotton exchange, as is at present proposed, will prove of great convenience to merchants who have business in Oomraotee during the hot months. The market is under the control of a Darogah, appointed by the Deputy Commissioner, who lives in one of the houses in the yard, and sees that the rules for the management of the market, recently drawn up by me, and approved by the Resident, are duly enforced. The arrangements are, I believe, as complete as will be found in any cotton market in India. Captain Bell, the Deputy Commissioner, has already received the thanks of the Resident for the interest he has taken

in the matter, and the promptness with which the works were completed, and I may say that the market is considered by all connected with the cotton trade to be a decided success.

114. The project of connecting Oomraotee with the Great Indian Peninsula Railway Company, by means

Proposed branch line of Railway from Oomraotee to Budnaira.

of a branch line from Budnaira, has more than once been mooted, and it appears for many reasons desirable that the extension should be carried out. At present the cotton

is brought into Budnaira by the new Government road, which has this season been thoroughly repaired. The distance is six miles. As this question has already been reported on at length, it does not appear to be necessary to say more regarding it now than that the completion of this branch would be a great boon to the cotton trade.

115. For the convenience of the cotton traffic, the Government stackyard at the Budnaira station has been moved from the south to the north side of the line, and cotton sidings have been laid into

Change in the site of the stackyard at Budnaira.
the new yards. The Budnaira station is most inconveniently placed, on the *south* side of the Railway, and thus all passengers and traffic coming from Oomraotee have to cross the line at a level crossing, near which trains are continually being shunted, an arrangement which often entails considerable delay. The new position of the stackyard has removed this inconvenience, but, in consequence of there being a "loading platform" on the south side, the siding has not received the favour that was expected for it. The extension of the Railway to Oomraotee will remove all inconvenience that may be felt.

116. Before leaving Oomraotee and its neighbourhood, I must not omit to mention a great boon that has been

Discontinuance of system of Poorzas in the Oomraotee Cotton Trade.

conferred on the cotton trade by the discontinuance, mainly I believe through the great interest taken in the subject by Mr. Murray, the Agent of the Bank of Bombay at that place,

of the paper currency or "*Poorzas*" in which all cotton business used to be conducted. The system will be found described in my Memorandum, and it is only necessary to add here that the change is an undoubted benefit to the trade.

117. Akola, as the return given at paragraph 10 will show, is a more important cotton district than Oomraotee even, and my Memoranda

on Khangaon, Akote, Julgaon, and Thailara, will have informed the Resident of the vast trade done at these markets during the cotton season. Akola does not appear to have been a place of any consideration until it was selected as the site for the Divisional and District Head Quarters.

New Cotton Market at Akola. Recently, it has undergone a great change, and now bids fair to become a place of some commercial importance. It has the great advantage

of being on the Railway, which, as the Resident is aware, is not enjoyed by Oomraotee, Khangaon, or Akote. During the year under report the Deputy Commissioner, aided by Mr. Bymanjee Jamasjee, Assistant Commissioner, has succeeded in establishing here a cotton market, which, considering the short time that has elapsed since the idea originated, has already made considerable progress. A well planned square, provided with wells &c., has been laid out at a convenient distance from the town, and on this I learn from the Deputy Commissioner's report, fifteen cotton dealers of Akola and Khangaon have established "*Thucks*," or weighing yards. In former years no cotton business, worth speaking of, was ever transacted at Akola; this season the trade in cotton has risen from about 500 Bhojabs, the average of former years, to nearly 7,000, and the Railway returns show that during the season of 1868 16,575 bales were exported from this station. Four half-presses were established here, and were kept fully employed until the rain set in. During my stay at Akola I have frequently visited the market and have found the management every thing that could be desired. Mr. Assistant Commissioner Bymanjee Jamasjee, to whom I believe much of the credit of the success of the scheme is due, takes considerable interest in all matters connected with the improvement of cotton cultivation, and has on more than one occasion afforded me assistance in trying experiments with exotic and indigenous seed.

118. In regard to the question of increasing the number of new cotton markets in the Berars, I would remark here, that now we have Oomraotee, Akola, Akote, Sheagaon, and Khangaon, I hardly think that any further action by Government officers is necessary in establishing new markets. It would be preferable, I think, if all our energies were now brought to bear to perfect what we have got; we are now sufficiently well supplied, and I doubt whether it is good policy to split up the local trade by setting up "thucks" or weighing places under Government auspices. So far as I can judge, I doubt whether it is a boon to either the cultivator or the dealer that a number of markets, at which a small business is done, should suddenly spring up. At present, several large and established markets, where the trade is concentrated, are in existence, and if the cultivator has now to carry his cotton

The establishment of new Markets deprecated.

rather further than would be the case if a cotton market was held at each pergunnah head-quarters, he is generally repaid by the difference in the price which he secures at the great markets, where the buyers being numerous and the competition for cotton during the season warm, a high price is invariably paid. Considering that Akola is a head-quarter station, and is situated in the centre of a cotton growing country, it is but natural that the District authorities should desire to see a cotton market there ; and that the scheme is generally popular, and that the results have entirely justified the measure, may be learnt from the increased business done there this season. But I would not advocate any further action of Government in adding to the number of markets now in existence.

119. Akote has always been a market of considerable importance.

Improvement of Akote. The improvements sanctioned by the Resident Commissioner, and I hope that before next sea-

son commences, the works in progress there may be completed. A new cotton market has been laid out. The custom in vogue in West Berar differs from that which prevails at Oomraotee, and the plan of the market has been modified to meet the requirements of the trade here. In Oomraotee the cotton purchased is generally weighed at the public scales, and hence masonry platforms, provided with scales, &c. are necessary. In the Akola District each dealer has his private weighing yard, to which the cotton, when purchased, is carried, and the cotton is exposed for sale on the carts which are ranged in rows for the inspection of the merchants, and this renders a different plan of market necessary. A traveller's bungalow for the convenience of visitors has been sanctioned for Akote. Until the building is completed, a small rest-house near the cotton market is available for the use of travellers.

120. To the south of Akote, on the G. I. P. Railway, the cultivators and others have recently established for themselves a cotton market at Sheagaon, and now that the people have shown their desire to do business there, the Deputy Commissioner has made arrangements for laying out a square on the plan of that of Akote. Sheagaon is the most important Railway Station on this part of the G. I. P. Railway Company's

The market at Sheagaon. line. Its situation between the great markets of Akote and Khangaon is eminently favourable, and it enjoys the advantage, which the abovementioned markets do not possess, of being on the Railway. If ever, as some believe will be the case, the trade should desert Khangaon and Akote and settle itself near the

Railway, then Sheagaon would most probably be the spot selected. The Mofussil Press and Ginning Company have two full-presses here, worked by steam, and a large number of half-presses are to be seen during the season in the cotton yard, which is the largest on the line. The Travellers' bungalow at this station, where many passengers alight for Khangaon, has been improved during the year.

121. By far the most important of all the cotton markets in the Berars is Khangaon. It is perhaps the largest in India. My despatch of the month of May 1867 contained my recommendations regarding the improvements of this great seat of the trade,

The Khangaon Market. and I am glad to be able to report, that the requirements of the place have now been met by the completion of the works sanctioned by the Resident, which have all been pushed on with great zeal, by Captain Hudleston, the Deputy Commissioner. In former years, the cotton market was held on a small patch of ground surrounded and cramped by the huts and houses of the bazaar. The space was quite inadequate for the large numbers of carts that poured in during the busy months, and consequently the streets and roads were continually blocked up with cattle and cotton carts, to the great inconvenience of all persons connected with the trade of the town. Before the commencement of this season, the Deputy Commissioner had caused an extensive piece of ground, conveniently situated, to be laid out as a new cotton market.

This cotton yard, which has been in use throughout the season, is supplied with wells, and tanks of water, and a small building which is

The new Market. now used as a sort of cotton exchange by all who attend the market, has lately been completed and placed at the disposal of the merchants, Europeans and Natives of Khangaon. The yard is in charge of a Darogah (appointed by the Deputy Commissioner) who collects statistics of the daily sales of cotton, rise and fall of prices, &c. and who, assisted by a Police guard keeps order within the market, and sees that the rules for picketing the carts and cattle, and stacking the cotton are carried out. The Police guard have charge of the Fire Engine (which is kept in the yard) and in the use of which they are regularly practised. These arrangements, made under the direction of Captain Hudleston, and carried out by Captain Grant, have been found of great convenience during the past season, and have given general satisfaction to the merchants who have had to transact business in Khangaon. A project has recently been started for improving the cotton market by building there a Town Hall, with clock tower, &c., for which a considerable sum has already been subscribed by the in-

habitants, and, if the project is carried out, the Town Hall will serve as a very convenient cotton exchange. A plan of the market is annexed. The arrangement is different from that of Oomraotee, in order to meet the peculiarities of the trade here.

122. The other improvements effected by Captain Hudleston have all, more or less, so direct a bearing on the comfort of those connected with the cotton trade here, that I think I may be excused if I refer to them in this report. Thus, sheds for the Weekly Market have been erected. A large Serai has been provided for the accommodation of travellers, and a Dispensary, which is a great relief to the crowds of strangers who flock into Khangaon during

Other buildings. the season, has been established. The roads have been improved, and a new School-house,

Library, Post Office, and other public buildings, which will best be seen from the annexed plan, have been erected within the few months he has held charge of the district. In fact, no effort has been spared to make this place worthy of the large business transacted here during the cotton season, and I am confident that all interested in the cotton trade at Khangaon appreciate as highly as I do, the great exertions for their comfort made by Captain Hudleston, and which have all been attended with such successful results.

123. A commodious Travellers' Bungalow has been sanctioned, and the works have been commenced. There New Travellers' Bungalow. is, I hope, every chance of the building being completed by November. It will supply a want that has long been felt to the great inconvenience of visitors at Khangaon.

124. In October last the Government was pleased to approve of my proposal that Khangaon should henceforth be made the head-quarters of an European Officer, and the large Court

European Officer stationed at Khangaon. House, in which the Assistant is to reside, is now nearly completed. I am confident that

the presence of an European Officer here throughout the year will be of great advantage to all the interests of this great place.

125. Much has been done, and is doing to improve the communications between Khangaon and the outer world. And by "communications" I mean, as already explained, not only the roads, but postal and telegraphic communications, the perfecting of which is of such vast importance to Khangaon as a commercial centre. The unfortunate position of Khangaon, at 12 miles from the Railway, is well known to the Resident. The road which connects this market with Nandoora is

to be repaired during the rains, and money has been sanctioned for the improvement of the Sheagaon road also. The opening of a crossing station at Jullum, a village on the Railway

Improved communications. between Nandoorah and Sheagaon, and 4 miles nearer to Khangaon than either of the last named places, has revived the hope, cherished here by many, that the G. I. P. Railway Company may eventually be inclined to bring a branch Railway to this market, and secure, for this 8 miles of line, the carriage of the many thousand tons of cotton that are now conveyed on country carts to Nandoorah and Sheagaon. As the bulk of the cotton from Khangaon now goes to Nandoorah, the opening of this branch line, besides securing the carriage to Jullum of the cotton which now reaches the line by cart, would also give the Company the advantage of an extra "mileage" of 10 miles from Jullum to Nandoorah. General Rivers has recently promised, that the Company will lay down the rails to Khangaon if Government will make the road. The road to Jullum has been sanctioned, and as the gradients are extremely easy, it is hoped that goods trains will yet find their way to Khangaon.* In this hope the public buildings Travellers' Bungalow, Serai, Court House, Post Office, Cotton Markets, &c. have* been laid out with special reference to the possibility of the arrival, hereafter, of the railway. An excellent site for a railway station and yard has been reserved close to the present cotton market.

126. Postal arrangements between Khangaon have also been much improved. Formerly there was but one post a day.

Postal arrangements at Khangaon. The bag was carried to Sheagaon, and the Bombay Mail for this place was dropped at that station, and the letters remained there until the arrival of the mail from Nagpore, which does not reach Sheagaon until after the Bombay train has passed. Now the effect of this arrangement was, that as Nandoorah and Sheagaon are about equi-distant from Khangaon, letters from Bombay, which, as containing cotton orders and commercial intelligence, are of the greatest importance to the residents here, were carried 20 miles further than was necessary, and were detained for some time at Sheagaon; whilst, on the other hand, the letters addressed to Bombay from Khangaon had to be posted much earlier than was really necessary to admit of their being carried to Sheagaon. Satisfactory arrangements have been made this season by the Post Master General. The Bombay Post now comes *in via* Nandoorah, and letters are delivered here within 23 hours of their being posted in Bombay, and the

* Since this was written the Branch State Railway to Khangaon has been sanctioned, and is making rapid progress.

arrangements for the outgoing post are equally satisfactory. The mail to and from the East is carried by a separate line of runners to Sheagaon. The new Post Office recently completed is conveniently situated on the Nandoorah road, near the Court House, and the other public buildings.

127. My despatch No. 4526 will have explained to the Resident how greatly the want of electric telegraphic communication between the cotton markets and Bombay is felt throughout Berar. I earnestly hope that my recommendations for a loop line from Malligaum to Nagpore through Berar, with branches to Khangaon and other

markets, may be approved by Government.*

Want of telegraphic communication between Bombay and the cotton markets.

On improved means of communication by Road, by Railway, by Post, by Telegraph, the stability of the cotton trade of the Berars very much depends, and to enable Khangaon and the

markets in this valley to hold their own against the other cotton tracts in India, it is, I believe, of the greatest importance that the electric telegraph should be brought into our markets, and that the merchants in Bombay should be placed in direct communication by electric telegraph with their Agents at Khangaon, Oomraotee, and Akote. As matters now stand, these markets are placed at a great disadvantage, when compared with Broach and towns in the Bombay Presidency. It takes hours to carry to Khangaon from the nearest Railway station the message which has been flashed up to Sheagaon in a few seconds from Bombay, and the delay is a serious drawback to the cotton trade here. I do very earnestly hope that the advantage of electric telegraphic communication may be extended without delay to Khangaon and all our cotton markets.

128. Dispensaries were opened at Nandoorah and Sheagaon during the season, and Native Doctors were

Dispensaries opened at Nandoorah and Sheagaon. appointed to those places to attend to the agents, and persons in charge of consignments of cotton, who generally congregate in large

numbers at those Railway stations where cotton in former years was stacked in great quantities. This year, owing to the improved arrangements of the Railway Company, there was no cotton block, and thus the number of persons detained at the cotton yards has considerably diminished. The cotton season having now closed, the native Doctors have been withdrawn.

* Since this was written I have heard that the line has been sanctioned, and that a large staff is employed putting up the wire on the Railway posts. We may then hope to welcome the line here by November.

129. Arrangements are being made to provide accommodation at the Nandoorah station for travellers. If it

Accommodation for travellers at Nandoorah.

should not be found possible to build a Dâk Bungalow at this place one or two rooms in the commodious Serai will be fitted up and will prove of great convenience to the numerous travellers who pass through this station on their journey from Bombay to Khangaon.

130. The district authorities have paid considerable attention to the lines of traffic which act as feeders to the Railway. It may take some time yet to provide the whole of Berar with good roads for the

Improvements at the Ghats over the Poornah river.

transport of its cotton, but, in the meantime, the importance of making the best of the country tracts, as they are, and repairing the bad places which show themselves after every

fall of rain, is not being lost sight of. This season the Deputy Commissioner took prompt measures immediately after the rainy season to improve the "ghats" or approaches to the Poornah river, and its many tributaries that intersect the road between Sheagaon and Akote, and similar precautions will be adopted next season.

131. The provisions of Act IX. of 1863 of the Government of Bombay (an Act for the prevention of adulteration of cotton, and the better suppression of fraud in the Bombay Presidency), were extended to the Berars by order of His Excellency the Viceroy in Council in 1865. The Act is not at present in force in the Central Provinces. As it appears for many reasons desirable, that the same laws connected with trade should regulate the transactions in both these Provinces,

Proposed extension of the Cotton Frauds Act to the Central Provinces.

which have so much in common, and the circumstances of which are so very similar, the extension of the Act to the Central Provinces has been recommended. In the Berars the

Cotton Commissioner has no authority under the Act, the Deputy Commissioners being the only officers vested with the powers of Inspectors. With the varied and onerous duties that the Deputy Commissioners have to perform, it is not to be expected that they can devote much time to inspecting the cotton at the presses,—upwards of a hundred in number,—which are now scattered over the Berars; and it has, therefore, been recommended that a certain number of special Inspectors should be appointed under the Act. As the cotton of the Central Provinces and the Berars contributes handsomely to the fund raised in Bombay under the Act, it is hoped that the Government of Bombay may be able to spare a portion of the fund to defray the expenses of the establishment, which it is proposed to entertain, to carry out the provisions of the

Act in the Central Provinces and the Berars. On a former occasion, the Government of Bombay evinced every disposition to treat the claim of these Provinces with liberality, and the proposed grant was only delayed in consequence of the introduction of the new "Cotton Act" into the Supreme Council. As nearly the whole of the cotton exported from these Provinces is carried to Bombay, the trade of that city has a direct interest in the improvement and character of our produce, which is to the merchants there quite as much "Bombay cotton" as any cotton grown within that Presidency. At present, however, the benefit of the large fund, raised by an export duty on all cotton shipped from that port, is confined to the limits of that Presidency, although, as has been already mentioned, the Central Provinces, the Berars, and other parts of India provide a very large share of the cotton so taxed. With the now large number of presses established in these Provinces, some special establishment is urgently required. As the amended Act provides for a portion of the funds being expended, if necessary, on the purchase of machinery or other purposes connected with the trade, it is hoped that the cause of improved cotton cultivation may benefit by the extension of the Act to these Provinces. My views and recommendations on the subject have however been submitted to Government in a separate despatch, and it is therefore, perhaps, hardly necessary to enter into any further details in this report. I will only repeat, that some Assistants are urgently required to aid in carrying out the many pressing matters connected with my Department, which are constantly presenting themselves, and which I doubt my being able to meet much longer single-handed. To the class of adulteration most common in these Provinces, and which gave much trouble last season, viz. the mixing together of good and bad cotton of the same variety, or "*false packing*," as it is called, the provisions of the Act do not at present apply, and an amendment to meet the requirements of this part of India has been proposed.

132. At the close of last year I had the advantage of accompanying the late Resident, Sir Richard Temple, on his ride from Akola to Hyderabad, and of thus passing through the richest part of the cotton-

Tour through the cotton growing tracts of the Territory of His Highness the Nizam.

growing country in the territory of His Highness the Nizam. Measures similar to those adopted in our Provinces have been recommended for improving the cotton grown in those tracts, and it is hoped that some action may be taken in this important matter before next season.

133. My recommendations for an experimental farm in Berar, on the plan recently sanctioned for Khandesh, have been submitted to the Resident at Hyderabad in a separate despatch. I see more clearly,

every day, that it is not to be expected that the natives of this part of the country will acquire confidence in any of our agricultural improvements, or will be induced to cultivate exotic plants, unless we can first demonstrate to them the superiority of what we advise them to adopt. If this superiority be distinctly proved to their satisfaction, they will follow our example, for they are not slow to follow when they have once gained confidence: but until then it is hardly fair to expect that they should desert their own methods of cultivation, to which they have long been accustomed, and which answer their purpose well enough, in favour of our inventions, or of exotic seed, regarding the suitability of which to their climate and soil, they may have very strong and perhaps

Proposed Model Farm in the Berars. not unreasonable doubts. A Government Farm would not only teach much to the natives of the adjoining villages, and by showing them

the fruits of our experiments, give them the necessary confidence in our recommendations, but it would also help to show European officers what is, and what is not, suited to the peculiarities of their districts. If we, with our knowledge of what succeeds at Home, are anxious to apply to the Berars, the experience of a country which differs in so many respects, and recommend a Koonbee to plough his fields deep, he will smile, and say that would never answer *here*. If he were to

turn up the soil, the fierce sun, he says, would burn out all the fertilising ingredients which it is his particular care to preserve; and then the rain and moisture, which must be husbanded against the heat of the dry months that follow

Importance of proving to the native the superiority of the system we recommend.
*
the monsoon months, would sink through the loose soil, says he. For these reasons he says he only scrapes the top of the field with "*bukhur*." I have instanced the simplest operation of agriculture; the Koonbee may be wrong, and deep ploughing *may* be the very want of the Berars. But, without proving to the cultivator that he is wrong, we can hardly expect him to change his customs. A Model Farm would help to decide this, and many other important points. If the cultivators could have opportunities of watching our system carefully, and seeing that exotic plants were successfully grown, and that cheap but effective methods of agriculture were in force which ensured much larger returns than resulted from their own rough plan, they would not be slow to profit by the reforms taught at the Model Farm, and to adopt our improvements.

134. If, as I have proposed, some practical European gardeners, Practical gardeners required to assist in selecting the seed. who could assist during the season in supervising the seed gardens and in selecting the seed, could be attached to this farm, I am satis-

guine that much might be done to improve the cultivation of the indigenous plant, and to determine the merits of the exotic varieties. At the farm large quantities of superior seed would be raised in nursery gardens according to Major Trevor Clarke's plan.

135. One of the objects of Exhibitions is doubtless to demonstrate to the people the great advantage of our agricultural machinery. But I doubt whether any Koonbee, who, dressed in his best, ever visited an Exhibition, has gone away at all convinced that the method of agriculture shown there were superior to his own rough plan of farming. The most serious obstacle that at present exists to the introduction, even where its superiority is undoubted, of improved agricultural machinery into this country, is the expensive character and the complicated construction of such implements. The native cultivator, according to the present system of agriculture, requires nothing that the village carpenter cannot make for him at a very slight cost, or repair for him without difficulty. But I doubt whether any Koonbee at an Exhibition ever advanced sufficiently far in the consideration of the agricultural machinery, there arranged for his inspection, as to arrive at this great stumbling-block which at present lies across the path of the general introduction of our machinery into the districts. Exhibitions last too short a time, and a Koonbee's visits are too few and hurried, and his mind is too unhinged by the occasion and its excitement to allow of his forming any practical idea of the merits of what he sees there. His best clothes and the presence of so many European officers, and natives of rank, the excitement of the whole show, the mechanical singing birds, and the "five-legged goat" * are too much for him, and he is altogether too flurried and bewildered by the quantity and quality of what he sees to lay to mind calmly or to profit by (even if he understands them) the merits of the deep soil plough, and the elaborate whirring machinery there exhibited for his benefit. There is in fact too much excitement about our Exhibitions to make them of much practical value

* Some zealous Berar villager, hearing that the Government desired that all should do their best to contribute "what was wonderful" to the Akola Exhibition, sent what was doubtless very wonderful indeed, a five-legged goat. The Committee, however, hardly considered it deserving of the high place which the owner expected it to secure, and banished it to the Chamber of Horrors, reserved for rejected contributions. But some of the native employés who had seen the specimen, and by whom it was by no means held in such low esteem, made of it a small exhibition of their own, and secured for their friends a view of the prodigy. It was hardly very gratifying when discussing with the cultivators the merits of the show, to find that, if the five-legged goat did not exactly carry off the palm, it was always affectionately mentioned as one of the many wonders seen by them at the Exhibition.

to the cultivator. And then Exhibitions last too short a time. Now a Model Farm would be a *Standing Exhibition*

The Model Farm to be a Standing Exhibition. in the centre of an important agricultural district, which could be visited by the cultivators at their leisure in their every day working clothes, and the operations of which could be watched out by them, stage by stage, free from the distractions and the general "tamasha" of an Exhibition.

136. Still, however difficult it may be to make many departments of an Exhibition particularly useful

Opportunities afforded by Exhibitions for testing the result of cotton experiments.

and instructive, it will perhaps generally be admitted, that an Exhibition, especially if held in the heart of a cotton-growing country, affords an excellent opportunity of collecting and comparing cottons from all parts of India, grown from different seeds and under various circumstances, and of explaining to the great mass of people who assemble on such occasions, the class of cotton most in request in the European market, and of showing them what can be effected by care and attention in cultivating and gathering the crop. Although, as the remarks in the foregoing paragraph will suggest, I think this can be done more effectually by a Model Farm; still, in their degree, Exhibitions have their uses, and during the year under report I have done my best to assist in my own particular department at the Exhibitions held at Jubbulpore and Akola.

137. The Jubbulpore Exhibition was held so soon after I joined

The Jubbulpore Exhibition.

my appointment, and at such a distance from the chief cotton-growing country, that I was not able to contribute as much to the cotton department there as I would have wished to have

done. Still, specimens of every sort of cotton were exhibited, and arranged in such a manner as to convey an idea of their value and usefulness; and the people of the northern districts, who grow an inferior cotton, were shown the excellent Hingunghat and Oomraotee varieties, and had an opportunity of examining the class of Indian cotton most in request in the European markets, the merits of which were explained to them by gentlemen who were kind enough to take an interest in the subject, and by myself. Major Hassard, thanks to the assistance given by the Government of Bombay, was able to exhibit at Jubbulpore his "half press," since so extensively adopted in the Berar and Hingunghat country.

138. *For the Akola Exhibition, I had more time to prepare, and as it was held in the centre of the field of my The Akola Exhibition.

labours, and in one of the most important cotton-growing tracts in India, an attempt was made to render the cotton department of the Exhibition interesting and instructive. Fortunately a roomy building,

The Cotton department there. with out-offices, situated at a short distance from the large Court-house in which the Exhibition was held, happened to be available, and was given up to the cotton department.

A plan of the building (the Engineer's Office) is annexed, and from it a sufficiently correct idea may be gathered of the arrangement which was planned with a view to show the visitor the many processes through which cotton passes before it is transformed into the fine cloth, in which shape it is most familiar to those who are not interested in the great trade of the Berars.

On the right hand side of the entrance **A**, were arranged the simple but effective implements used by the Koonbee of

Collection of agricultural implements. the Berars in the cultivation of cotton, viz. the bukhur, or scraper, the deep plough (but seldom used, save in breaking up virgin soil),

the drill plough, which, though rough looking, succeeds in sowing the cotton seed in neat regular lines, and the *kolpa* or diminutive

“*bukhur*” used for removing the weeds which

The various sorts of seed. spring up between the cotton rows during the rainy season. By the side of these implements specimens of the various sorts of seed were exhibited, and then

came a small bed containing the growing plants of various sorts, to show how the cotton appears in the fields, the shapes of the leaves, &c., and the manner in which it is picked. The cotton gathered

from the fields (the “*kupas*” or cotton in the seed) was massed in heaps in the sheds marked **B**, which were devoted to the exhibition of the various machines used for separating the seed from the wool, or for

“cleaning the cotton,” as it is generally called.

The process of picking and cleaning. Here were to be seen the foot-roller, used in parts of the Bombay Presidency, but which

lacerates the staple cruelly, the “*churka*,” or more properly speaking, the “*recha*” of the Berars, and the rude, but, of its kind, perfect little machine peculiar to Hingunghat,* which does less

* As it is, this report has, I fear, been too much burdened with details, and I am unwilling here to give an account of these instruments, which will be found described at length in my Memorandum on the cotton cultivation of these Provinces. I may mention

injury to the staple, and turns out cleaner and brighter cotton than any machine yet invented. By the side of the

Collection of the machines used for cleaning. implements used in the country, were various European inventions: Dr. Forbes' saw-gin,* and many specimen churkas, and the Platt's

Macarthy gin, which has done so much to raise the character of the Broach cotton, and which is in use at the four large factories now established in the Berars. The machine was worked with the assistance of Mr. Macrae's new bullock-power, which was pronounced to do its work admirably. The seed having been removed from the wool, the cotton was in a marketable state, and was supposed to be carted for that purpose to the shed C, where, by the side of a primitive pair of native scales, of the "string, basket, and stone pattern," the cotton as it is brought to market was shown in the shape of the "*jingah*," or net-full of cotton, as generally seen in the eastern districts,

The cotton as brought and to which an allusion is made in para-
to the market. graph 110, and side by side with the better known

dokra or loose bag of West Berar. Specimens of

stones extracted from cotton brought to our markets, which stones had been purposely concealed within the dokras, with the dishonest purpose of increasing the weight of the package sold, had a special and prominent place devoted to them, side by side with some "false packed"

Specimens of adulterated cotton. dokras, consisting of good bright cotton as to the outside, but containing beneath the surface a mass of foul and damaged stuff. The owners

of these specimens were invited by a placard placed in front of the specimens to take back their property at the close of the Exhibition, "as they would then be no longer required." As the specimens thus gibbeted attracted general attention, and were noticed by all the Koonbee cultivators and petty dealers who visited the Exhibition, it is to be hoped that they helped to convey a very necessary moral lesson.

139. This closed the section in which the cotton as brought to

The cotton packed for export. market was shown. It was followed by specimens of cotton as packed for export; the clumsy *dokra*, or loosely filled bag now nearly

obsolete on the Great Indian Peninsula Railway; the half-pressed bale, in which by far the greater part of our cotton is now sent to Bombay; and the neat full-pressed bales turned out in large quantities this season

however, that the Berar "*churka*" is the "two-handed" one, consisting of one iron and one wooden roller, each of which is worked by a woman. Both the rollers of the Hingunghat *churka* are of wood, and are worked by one woman with the assistance of an endless screw ingeniously fitted into the ends of the rollers.

by the full-presses in the Berars, and in which form the produce of these Provinces can now be sent direct to Liverpool without any fear of its being tampered with or mixed with inferior growths.

Half-presses shown at work. Two half-presses were shown at work, and models of others occupied places in the shed, together with specimens of the various ropes, and gunny cloth, and iron bands, ties and clips, stencil-plates, &c., used in packing and marking the bales. In this part of the Exhibition in which the various processes through which cotton passes from the seed to its final export were shown, the full pressed bale necessarily closed the series. The various specimens of cleaned cotton, to be hereafter alluded to, were arranged, for the sake of comparison, in the room marked **E**; but as it was considered that many of the visitors might care to have an opportunity of seeing the machinery used, in this part of India, in spinning the yarn, weaving, dyeing, and stamping the cloth,—the remaining half of shed **D** was devoted to this purpose. I was fortunate enough to be able to persuade some of the celebrated weavers of Nagpore to accompany me to Akola, and to bring with them the whole of their apparatus, and, with their help, it was possible to make this department of some interest to those who were anxious to understand the method of this class of native manufacture.

140. The cleaned cotton, after it leaves the churka, and before it is ready to be spun into thread, has to pass through the hands of the Pinjarcés, (generally Mahomedans), who open it out ("fluff it up,"

Processes through which cotton is carried before the cloth is made.

have occasion to pass

Opening out the cotton.

are bought by the spinners, who, with the aid of the rough spinning wheel, and a most wonderful delicacy of touch, transform the *pootées*

Manufacture of the Pootées.

ordinary yarn (equal to about No. 30) from which a coarse cloth is made, to a thread equal to what an English manufacturer would call

No. 131 in fineness. Allusion has already

The process of spinning.

been made to this yarn in a former paragraph; it is scarcely thicker than the mesh of a

spider's web, and a pound weight of it will reach nearly 150 miles. The spinning-wheel was shown at work, and every one was astonished at its clumsy primitive appearance, and the dexterity with which it was worked. It may be remarked here that the Dhêrs, who spin the very fine thread, are particularly careful in the selection of the cotton for the purpose. They always buy it in the seed, and no churka is allowed to touch it, or cause the least injury to the staple, each seed being carefully removed by the hand.

141. The yarn when made has to go through several stages, and to be unwound from the reel, measured, the threads separated and arranged, before it is ready for the loom. And all these processes,

which it would be tedious to enumerate here,

Arrangement of the threads before they are placed on the loom. from the unwinding of the reels formed on the spinning-wheel to the threads arranged on the warp ready to be placed on the frames, were shown and explained by the skilful Nagpore weavers.

The process of spinning the silk and arranging the threads, with which the Nagpore cloths are so tastefully and richly adorned, was also shown in all its stages; and, lastly, two looms were to be seen at work; that used by a Dhêr (an outcast, who was of course seated apart!) with his rough and substantial cloth, and the Nagpore weaver, with his elaborately carved loom, who was engaged in making

a white dhotee of exquisite fineness, the border of which was composed of many tastefully arranged silken threads. Many who visited this

The looms at work. part of the shed were much interested in the skilful performance of the Nagpore workmen. It is my intention to describe their trade in a separate communication, and it is not necessary to say more here on the subject than to mention that the plan of arranging the pattern before the warp is placed on the loom, and of preserving the pattern whilst the shuttle is at work (a delicate and troublesome business, pro-

vided for, I believe, in Europe by the Jacquard

Process of dyeing and stamping the cloth. loom), is of peculiar interest. The process of dyeing and stamping the cloth, and specimens of the patterns most popular among the natives, were also shown, and some of the wooden blocks were pronounced to be well cut and of well-arranged patterns.

142. The last section in the sheds outside the main building

Collection of articles manufactured from the cotton stalk. showed all the uses to which the stalk of the cotton-plant is put, and consisted of a collection of the baskets, screens, thatchings for

roofs, &c., made from the stalk. This section also contained specimens of all the articles besides cloth that are made from cotton and used in

India. The consumption, as is well known,

From cotton otherwise than cloth and thread. is large, the articles consisting of horse-trappings,* ropes, pillows, padded coats, lamp wicks, carpets, &c., &c., which are to be found in nearly every house.

143. The Executive Engineer's Office, the building marked E,

Collections of cotton of all countries. was arranged to receive all the specimens of cotton sent to us from India and other parts of the world, and in these contributions we were particularly fortunate. Early in 1867 the Cotton Supply Association at Manchester, to whose support and assistance in matters connected with my duties, I have had on several occasions to allude in my communications to Government, supplied me with a complete set of samples of all the cottons known in the Liverpool market, with particulars of their relative values, &c. This formed a small exhibition in itself.

The Association, moreover, were pleased to evince in a very substantial manner their interest in the Exhibition by contributing the sum of Rs. 500 (five hundred rupees) to be distributed in prizes in this department. The cotton of nearly every part of India was represented. Mr. Walton sent specimens of the growths from the experimental fields in Dharwar. Mr. Sheppard, C.S., Mr. Lionel Ashburner's successor in Khandesh, took special care that Mr. Ashburner's efforts to improve the cotton of that district should be properly represented, and the Khandesh specimens were sufficiently numerous and varied to deserve a department to themselves. Mr. Pearson, the Cotton Inspector for the Khandesh district, who was present at the Exhibition, rendered great assistance in arranging the cotton department, and his services were recognised by the Committee by the presentation of a medal and certificate, which were certainly well earned. The Deputy Commissioners of the Central Provinces and Berars were good enough to prepare and forward specimens of cotton grown in their districts, and it was only to be regretted that the utterly exceptional character of the season, to which reference has already been made, resulted in the samples from the

Great assistance rendered by the Manchester Cotton Supply Association.

* Horses and ponies are much more generally used in the Berars than in the Nagpore country, where the landholders make their journeys in light bullock carts called "Ringhees." Here every "Patel" has his pony, and the well-to-do ryots are to be seen riding. The class who make the pony-trappings, toys, &c., are numerous, and are to be seen at all the markets and fairs.

Central Provinces being, as compared with the produce of former years, none of the best. Many gentlemen interested in the cotton trade contributed specimens, and to Mr. James Melville of Hingunghat, Mr. Greaves of Broach, and Mr. Dougall of Akote, the Committee were particularly indebted for the assistance rendered in this respect.

144. Altogether there were exhibited in the centre building nearly 300 specimens of cotton. Some of Cotton grown in India. these were the growths of foreign countries, shown as curiosities, and for the purpose of comparison. The rest were of Indian production. Cotton grown in India from American, Dharwar acclimatized New-Orleans, Egyptian, and Peruvian seed; the indigenous cottons of Dharwar, Broach, Akote, Oomraotee, Hingunghat; the improved staples of Khandesh, Nimar, Raepore (grown from Hingunghat seed); and many others, too numerous to mention, were shown side by side. The cotton in the seed was also exhibited, and some landholders, on whom I had

Specimens selected on pedigree system. attempted to impress the importance of the subject, sent in "*kupas*" selected on the pedigree system, whilst others, to show the attention they had paid to my advice regarding

picking the cotton, sent in bags full of *kupas* quite free from Icaf and dirt, showing the care with which the produce had been collected. The same cotton cleaned with different machines was also shown, and, in the Akote specimen, the advantage of the "Platt's Macarthy Gin" was clearly visible. Of two specimens sent by Mr. Dougall, of

Specimens showing careful ginning. which the one had been cleaned by the native churka, the other at the Mofussil Company's Factory at Khangaoli, not only were the effects of careful ginning to be clearly distinguished in the latter specimen, but it was ascertained by weighment, that a saving of 4 per cent. of wool was effected by the Platt's gin, and that a considerable quantity of cotton had been washed by being dragged through with the seed in the native machine.

145. In the same department were yarn and every sort of native thread manufactured in our Provinces; from the coarse home-spun yarns, made by the old women of the family, who are capable of no other exertion, to the extraordinary fine thread

Specimens of Native and European yarns. which the Dhêrs succeed in spinning out, and to which allusion has already been more than once made. The different yarns of English manufacture were also shown side by side; and thanks to the thought-

fulness of the Coorla Spinning and Weaving Company, the Committee were able to show the various processes through which the cotton passes in the spinning mill before it appears as yarn.

146. Lastly, the various sorts of cloths manufactured in these provinces, were shown side by side with the English

Collection of native cloth manufactured from cotton. imitations, and the fabrics now made in considerable quantities at the mills of Bombay. I

found that many strangers were quite surprised at the fineness and excellence of the native cloths of Nagpore, Chandah, and Bhundara. So long as the Exhibition was open, I did my best to explain to all visitors the points in the collection, and advantage was taken of the presence of so many of the cultivators of Berar to march them in classes round the Exhibition, and to show them the cotton that could be grown on their lands ; the class of cotton that was required in the home markets ; and specimens of the adulterated or inferior cotton, which they were warned was *not* appreciated. In this respect at least, I hope that the cotton department of the Exhibition, the arrangements of which occupied much of my time, may have been of some real benefit to the interests with which I am now officially connected.

147. In concluding this brief notice of the Akola Exhibition, it may not, perhaps, be considered out of place

Prizes awarded by the Jury. to mention some of the samples of cotton, and the various apparatus connected with its preparation that were considered by the jury to

be of the highest merit, and most deserving of reward. As already mentioned, the Cotton Supply Association of Manchester very generously supplemented the Exhibition Fund by a grant of Rs. 500 for prizes in this department. It was considered right that the prizes should not be confined to the best specimens of cotton, but that processes which tend to ensure the cotton of our Provinces being prepared for sale, and brought to market in a creditable state, should receive their reward. Thus the exertions of the Patel of Argaon (the Duke of Wellington's battle-field), who, by selecting the kumas on the pedigree system, has done his best to improve the cultivation of the plant on his estate, was rewarded by a medal and certificate (the shape in which natives prefer to receive prizes), which he now proudly exhibits to every stranger who visits Argaon. A Patel, who had taken particular care in picking the cotton exhibited by him was similarly rewarded, and one or two others received prizes of a lesser degree in recognition of endeavours of a similar character, all of which were held to tend towards the improvement of the character of our cot-

ton. Then the Platt's Macarthy gin received a well-deserved prize; and on Mr. Macrae also, who had invented a "bullock power" to drive three of these machines at a time, a medal was bestowed. The most carefully ginned cotton was declared to be that exhibited by Mr. Dougall, of the Mofussil Ginning Pressing Company, who secured the prize in that section. The excellent arrangements now available in our Provinces for pressing cotton, and thus sending it carefully packed to England, were represented by the full-pressed bales fastened with iron bands exhibited by Messrs. Warwick and Co. at Hingunhat, and these carried off the prize for pressing. The Committee's appreciation of the enterprise of Mr. Sham Rao, who has set up half-presses at every cotton market in the Berars, was marked by the award of a medal and certificate for his half-press, which was shown at work in the yard of the cotton department. A special gold medal was awarded to the Cotton Supply Association for the excellent collection of cotton exhibited by them, and for the assistance they had rendered, and the interest they had taken in the undertaking from the very first. I have mentioned in detail some of these arrangements connected with the cotton trade which received the favourable notice of the jury, because it is to be remembered that, if we desire that our cotton should arrive at home in a creditable state, it is as necessary to encourage the improvement of the many processes through which it has to pass after it leaves the field, as it is to reward care bestowed on the cultivation of the plant.

* 148. The prizes awarded to raw cotton were numerous, and the duty of selecting the most meritorious specimens entailed considerable labour on the jury, specially selected for the purpose. I must here mention that the Committee were quite sensible of the difficulty that always presents itself at all Exhibitions in getting together a sufficient number of gentlemen to serve as jurors in the many departments (some of them require special knowledge and experience) of which an exhibition is composed. For my own department, I saw very early in the day the difficulty that would arise, and, accordingly, the Chamber of Commerce at Bombay were addressed, and requested, if possible, to appoint two of their number to serve on the jury of the cotton exhibition. A similar request was made to the Honorary Agents of the Cotton Supply Association at Bombay. Unfortunately, owing to the weather and other reasons, visitors from Bombay were not as numerous as had been expected; but, on the other hand, the Committee were fortunate enough to secure the services of two gentlemen, both merchants of Bombay, and both possessed of considerable experience in the cotton trade, who kindly consented to act as

jurors on the specimens exhibited. Two officers of high position in the Commission were also on the jury, and two native cotton brokers, one from Khangaon, the other from Akote, who during the season live amongst cotton, and two native landholders, who grow it extensively on their estates, were added to the jury by the President. As Chairman of the Committee of the department in which the examination was to take place, I accompanied the jury as *cicerone*, and as I was present when the inspection of the specimens was made, and the prizes were awarded, I may be allowed to say that I do not think any jury could have performed the duty more carefully or impartially.

149. The result of their examination was, that the Khandesh Hingunghat cotton was declared to be the best ; next in merit stood Mr. Melville's specimen of "Hingunghat," and to Mr. Dougall's Akote cotton was awarded the third place. The Dharwar saw-ginned was old cotton of last year's growth, and could hardly compete fairly with the fresh bright specimens. To it was awarded a fourth prize. The verdict was important, as showing the high place held by the cotton grown in India from good indigenous seed. The Khandesh Hingunghat beat the real Hingunghat, but it must be remembered that in Hingunghat itself the rainy season had been exceptionally heavy, and that the specimen exhibited was not an average one.

150. And as it has been more than once advanced that prizes should only be awarded to samples of cotton specimens of what can always readily be obtained in the market, it may be well to mention here the principle on which the Committee went. The prizes were offered by the Committee (as at other Exhibitions) for the *best* specimens of cotton. It was, I believe, felt by the jury that it would not be fair to award prizes to garden-grown specimens ; but I may mention that, with the exception of the specimen of Dharwar New Orleans cotton, which had been grown in an experimental field belonging to the Bombay Government at Dharwar, and cleaned at the factory there, all the specimens that obtained prizes were cotton grown in fields by natives, who had no idea, before it was picked, that their produce would go to the Exhibition, and all these specimens were cleaned by the common native method. And here the principal object of the cotton department of the Akola Exhibition must not be forgotten. It was our wish there to show *what could be done in India* by care and attention to improve the cotton exported. It was desired that European visitors should realize that the cotton grown in our districts is in itself good enough, and that the unsatisfactory

state, in which it sometimes reaches the markets of Bombay and Liverpool, cannot fairly be attributed to any fault in the seed, or in the plant, but that it is entirely owing to careless preparation and other stumbling blocks in the path of improvement, to remove which must be one of the chief objects of the Cotton Department. For the natives who visited the Exhibition, we desired to set up a standard to show them also what *could be done*, and what we wished them to attempt to do ; and it is difficult to say how these objects could have been secured, if prizes had not been offered for the very best specimens of cotton produced in the country, assuming always that these samples had been fairly grown and prepared.

151. As I have already explained, much of my time each day was devoted to taking round "classes" of cultivators,

Lesson to be taught to
cultivators at an Exhibition.
and pointing out to them the prize specimens, showing them what could be effected by careful treatment, and begging them to do likewise.

But what lesson would it have been possible to read to them if the prize specimens had been the ordinary ones of the district ? This class of cotton was unfortunately but too well known to them ; what inducement would be offered to them to improve, if the cotton, such as we know it to be, was to be selected for distinction and reward ?

152. On the other hand, the best specimen carefully selected, carefully picked, carefully cleaned, was the

Prize specimen set up as
a standard.
standard to the level of which I begged them, by improved agriculture, and greater care, to try and raise their produce. "This," I could

say, "is no foreign plant, it is from your own seed, and from a field in one of your own villages; but see what an effect careful treatment has had on it, and how superior this is to the indifferent stuff you generally bring to market. Gentlemen well acquainted with the matter say this cotton is worth 15 rupees a *bhoja* more than the ordinary cotton. Is it not then worth your while to devote more attention to your crops ? Go and try and raise cotton equal to this, and you may be certain of getting good prices."

153. If, as it has been suggested, it is desired to know the relative merits of the cotton crop of the Indian districts, it is surely not

Competition with ordi-
nary specimens can better
be held at Colaba.
necessary to go to an Exhibition at Akola for this purpose ; the Colaba Green, where a much more extensive assortment is available, would be the place to apply the necessary tests, or, perhaps that question could be most easily and

satisfactorily settled by a reference to the quotations in the Home market such is as given at paragraph 69.

154. For these reasons it will then, perhaps, be understood, that the specimens that carried off the prizes were doubtless as good as could possibly be produced. But it was not pretended that they represented the average yield of the districts. They simply were the examples of *what could be done*, the standard to which it was desired that the native growers should try and rise. And it was, perhaps, quite as just and correct that the medals should be bestowed on the best specimens of cotton, as it is that, at an agricultural show at Home, the prize for turnips should be given to the finest turnips exhibited, and that the big gooseberry at a fruit-show should receive its reward. No European gentleman

Object understood by most of the visitors to the Exhibition.

who visited the Exhibition was deluded into the idea that the prize specimen of cotton was the sort of cotton that could ordinarily be got

in the market. I am certain the natives did not think so. If the Cotton Commissioner had pretended that the cotton of the Central Provinces and the Berars was sent to Bombay in the condition of the specimens that secured the highest prizes, he would have signed the death-warrant to the existence of his appointment; for where such excellence prevailed, the presence of a Cotton Commissioner would be utterly unnecessary.

155. As already noticed, one of the chief objects of the Exhibition was to show to the natives of the Berars

Collection of raw products taken to Bombay.

advantages of the mechanical appliances in use in our country, and to explain to them the importance of improving the methods by which

the produce of their fields is prepared and brought to market. At the same time the Exhibition in Department A formed a complete museum of the chief natural products of this part of India, and could not fail to be of interest to all mercantile men, as showing the many valuable raw products available for export. Owing partly to the unfavourable state of the weather, and also to the circumstance of January being a very busy month in Bombay, very few merchants were able to attend the Exhibition. It was, therefore, determined to send the whole collection of raw products to Bombay, for the inspection of the Chamber of Commerce and the merchants, and by the kind permission of His Excellency the Governor, the specimens have been arranged in the Town Hall there, and have been inspected with great interest by many gentlemen interested in the trade of our Provinces.

156. During my tours I have many opportunities of collecting information regarding many articles of trade besides cotton, and I have always attempted, as far as possible, to make myself useful in all matters connected with agriculture and commerce, and I now continually receive references from merchants and others in matters connected

Attempts to improve other classes of produce, and to collect information on other sources of supply besides cotton.

with the products of these Provinces, on all of which subjects I do my best to procure the best information. Thanks to the assistance of Mr. Kittredge, the Consul of the United States of America at Bombay, I have also been able to import a considerable quantity of tobacco seed (James River Virginia), and Carolina paddy; and the experiments have proved so successful; that I am sanguine of being able to improve the cultivation of both these classes of produce.

157. Lastly, what time I have had to spare has been occupied in preparing a lengthy Memorandum on the cotton cultivation and trade in these Provinces, which may, I hope, in course of time develop into a cotton hand-book for this part of India, and

prove of some use to the many gentlemen who have afforded me such valuable assistance and information on my visits to Bombay. But, as Mr. Saunders may, perhaps, know, my work has not been of the lightest, and what with a very large correspondence and the constant moves I am obliged to make, I have had but little leisure to devote to finishing the Memorandum in the form I should wish to present it. It is difficult to collect and put together information of this kind when one is on tour; and, as I have not been at my head quarters save for a day or two at a time for the last ten months, the difficulty I have experienced will be readily understood.

Preparation of a Memorandum on cotton cultivation.

CONCLUDING REMARKS.

158. The statement of the operations of this department during the year 1867 and part of 1868, which has, of necessity, consisted of an egotistical account of the measures adopted by me during that period to further the interests of the cotton trade in these Provinces, has now been brought to a close. Before concluding this report, I would desire, however, to refer to the important causes that have been at work in our favour during the last few years in this part of India, and which have, I believe, been more effective in improving the cultivation of

Great change that has taken place in the trade in the last few years.

cotton, its preparation for market, and the general tone of the trade, than could have been any action of Government, however skilfully or powerfully directed.

159. Until within the last few years the character of Indian cotton in the Liverpool market stood very low, and the name "Surats," the description under which the cotton of these Provinces is still included, was a by-word and a general term of contempt.* We now hear from Home of the great improvement in Indian cotton. The

Improved character of our cotton.

extracts quoted in former paragraphs will have shown Mr. Saunders that the Hingunghat and superior Oomraotee cottons are now classed as nearly equal to ordinary American.

Although the success of the Cotton Department in Western India is well known, it would be absurd to suppose that, in these Provinces at least, these great results are due to the exertions of Government officers, which are comparatively of but recent date. The improvement has certainly not been caused by the introduction of any foreign seed, nor has the cultivation of the plant suddenly undergone any great change. How the very desirable results have been brought about, an attempt will now be made to explain.

160. The bad name borne by Indian cotton in the Home market deserves apparently to be debited to the manner in which the trade was, until recently, conducted, and to two great obstacles which, for

Former bad name debit-able to the manner in which the trade was conducted.

years, successfully barred the road to any change or improvement in the up-country bu-

* It was not many years ago, I think, that a Lancashire brewer brought an action for libel against a Liverpool man for having called his beer "Surats." The evidence went to show that the term "Surats" was applied to anything that was considered particularly bad—one witness interpreting the word (more forcibly, perhaps, than elegantly) to mean "muck."

siness. The first and greatest of these obstacles was the position of the cultivator, on whom we are dependent for the supplies of cotton. The other was caused by the inaccessibility of the inland tracts in which the cotton markets are situated.

161. Even until within the last few years the cultivator of this part of India was a somewhat miserable and depressed creature. His tenure was not very secure; at least he had no confidence in its stability. The administrative machinery for redressing his grievances was neither so extensive nor in such good working order as it now is. He was deeply in debt; and, as if to remove all hope of his ever extricating

himself, the instalments of the land revenue
Depressed state of the were so arranged, that, the rents falling due at
cultivator. a season when the cultivator had no produce on
hand to meet the demand, a recourse to the

money-lender was a matter of certainty and necessity. The depressed condition of the cultivator told upon his crop. The only means he had of procuring an advance to meet the call which came upon him, when his autumn crop was yet quite young, was by giving a "*Laonee*," or making a contract with the village banker to supply a certain quantity of cotton (generally "*kupas*," or cotton in the seed) by a fixed date. The contract rate was, as might be expected, fixed extremely low, the terms being as favourable to the grasping money-lender, as they were ruinous to the needy ryot. The crop thus virtually passed out of the cultivator's hands, and his interest in it ceased, before the plant was in blossom. Under these circumstances, it was hardly to be expected that he should play towards it any kinder part than that of a step-father, or that he should exert himself to improve it by careful tending and cultivation. The cotton, whether good, bad, or indifferent, would bring him in no more than the price already fixed in the bargain to which necessity had compelled him to agree. In November, when the bolls burst, and when, in order to secure really good cotton, it is indispensable that the fields should be picked without delay, the ryot would find that his contract had another month or six weeks to run, and that the *jowaree* also, the grain on which the people of these parts chiefly depend, was ripe, and that it was exposed to the attacks of the *jowaree* birds, which so soon decimate the best field. The *jowaree* being his own and not pledged to the village banker, the ryot would have a direct interest in paying to it the first attention, and in getting it cut and stored without delay, and the whole family would, therefore, busy themselves with the harvest, which was to provide the food for themselves and the cattle during the year. In the meantime, the cotton would suffer, the ripe wool falling

to the ground, and the whole crop standing exposed to the thick dust, and the heavy dew of the cold weather, mornings and evenings.

Effect of this condition on the crop. Still the ryot could hardly be expected to lavish much sentiment on his cotton field, or put himself out to attend to the picking of the

crop. The only effect of such attention would be to improve the Marwaree's bargain, which, now that the price of cotton had risen to perhaps double the rate at which the "*laoncee*" had been concluded, was, the Koonbee might think, already sufficiently in the money-lender's favour. If the wind was blowing down the cotton, and tossing it about on the ground, in such a manner that the bright wool became mixed with the dust and dirt and leaves, the damage would not affect *him*. He would get no more for good and carefully picked cotton than for this stuff. The contract with the Mahajun was for a certain weight of kupas, and a moderate amount of dirt would improve the weight, and was not, therefore, altogether undesirable. And why then should he put himself out? Thus the cultivator's crop passed out of his hands soon after it was sown, and with it disappeared that inducement to cultivate the plant carefully, and to keep the cotton free from dust and dirt and impurities, on which the good character of our produce must greatly depend.

162. This system threw both the cultivators, and the cotton crop

Adulteration of the cotton on its journey west. of a district into the power of a certain number of money-lenders, who had every object in keeping the trade in their own hands. It is

hardly necessary here to go into the details of the tricks of the trade, or to relate the treatment which the cotton, neglected and ill-used from its infancy, received from the time it appeared in the market in the Wurdah district, until it arrived and was presented to the merchants on the Colaba Green in Bombay. Certain it is that it was to the interest of the up-country dealers to mix cottons of inferior growths with "Hingunghat" and "Oomraotee" and other well-known cottons; and in the districts themselves, and in the long land journey from this part of India to Panwell, numerous opportunities presented themselves of tampering with the loosely packed dokras. It has also been established beyond doubt, that, like Port wine, twice as much cotton was sold during one season under the name of Hingunghat or Oomraotee, as had been produced in the particular district. And, thus, our cotton, damaged even before it left the ryot's field, having enjoyed all the advantages of the dirt and manipulation during a long land journey, was sold in the Bombay market and sent home to Liverpool. Perhaps it is hardly to

be wondered at that this non-descript mixture called "Surats" became a by-word in the Home market !

163. The other great obstacle to improvement was the inaccessibility of our cotton markets.

Inaccessibility of the cotton districts an obstacle to improvement.

Within the last year or two only, it was a weary journey from Hingunghat to the point where it was possible to get a lift on the contractor's engine to the terminus of the railway ; and the difficulties that

an European had to encounter in travelling in this part of India, or in getting anything done for him, were very great. Moreover, an extraordinary prejudice, on what grounds I can hardly ascertain, existed against the climate of the Berars, which now-a-days people find sufficiently bearable, and not more objectionable, perhaps, than most other parts of India. In an article in the *Bombay Quarterly Review* on the subject of the then proposed Branch of the G. I. P. Railway through the Berars, it was mentioned, that the difficulties of the country, and the desperate climate of the valley, would most probably prevent contractors from undertaking the work, and would render it necessary that the construction of the line should be carried out departmentally. Only quite recently, a gentleman of great experience in the cotton trade at Bombay, in talking at Liverpool of the excellence of the cotton in this part of India,

mentioned, as the great obstacle to the

Great prejudice against opening out of the trade, the deadliness the climate.

of the climate which few Europeans could stand ! And I find a former Resident at

Hyderabad, in answering some inquiries of the Cotton Supply Association of Manchester regarding the trade in these Provinces, writing as follows—"Another objection is the climate, which, especially in the valley of the Berars, is decidedly unfavourable to the European constitution," and this is in the country in which General Wellesley moved an army by forced marches, and fought several battles during the most unhealthy season of the year without the ill effects of the climate presenting themselves ! Still, besides the climate there were, some few years ago, many and almost unsurmountable obstacles to Europeans doing here a large and successful business.

The uncertainty and difficulty of transporting the

Difficulties to be encountered by Europeans.

produce was great ; the system of cheating and trickery was so elaborate and intricate

that no European, who did not possess the most intimate knowledge of the language and of the people, could have hoped to combat with it successfully. The trade was entirely

in the hands of the local dealers, and it was their interest to keep out outsiders ; and combination was hardly necessary to effect this. The weights, which differed in every market, were alone sufficient to baffle a stranger ; and the constant holidays and consequent stoppages in the work, and the passive resistance which had to be encountered at every step, were quite enough to wear out even a very energetic European.

164. Like the twin dragons that, in a fairy tale, guard the entrance to the haunted castle, the two obstacles that barred the way to improvement were such, that no advance could be made unless both could be simultaneously removed by one successful blow. So long as the markets were inaccessible it was of no avail to improve the position of the ryot. Even if he were suddenly to become sufficiently independent to carry his cotton to market, the inaccessible state of the country would prevent any outsider coming forward, and the money-lender, being still the only purchaser would still keep the trade in

his own hands. And even if, on the other

Difficulty in removing the obstacles to a change in the trade.

hand, a network of railways were to remove this obstacle, and to bring European mer-

chants into the field, the indebtedness of the ryot would effectually prevent his dealing directly in the market with the new comers, and the trade would still remain as before. Sud-

Sudden and complete change.

denly, as if by magic, both these obstacles were effectually and simultaneously removed, and the cotton trade, as it was carried on in 1864 in

Central India, is hardly to be recognized by the side of the business as it is done in our markets to-day.

165. Whilst the railway, slowly but surely, was working on to the heart of the cotton-growing country, the position of the cultivator was undergoing a great and decided change. The operations of the Land Revenue Settlement relieved him of all anxiety regarding his tenure ; the re-arrangement of the instalments of his rent, now fixed so as to give him time to dispose of his crop before payment for his fields has to be made, have helped to lighten his burden with the money-lender ; and finally, the American war, by raising the price of cotton, and pouring into the ryot's hands, what appeared to him untold wealth, enabled all who were not utterly reckless and extravagant to free themselves from the meshes of the money-lender's books. In the Wurdah district the price of cotton rose from Rs. 23 a "bhoja" to Rs. 140 ; and, although there have been many disappointing fluctuations, it still stands at what, even making allowance for the increased expense of cultivation, is a remunerative rate. And although, unfortunately,

Improvement in the position of the ryot.

many cultivators may be met with, who, believing the golden age would never end, spent fabulous sums of money on marriages, pairs of fancy bullocks, and other extravagancies, and

ran even more deeply into debt than before, still the mass of the agricultural population seized the opportunity of ridding themselves of the burden of debt which had so long weighed them down, and affected so injuriously their produce.

166. Simultaneously the railway arrived at the threshold of our markets, and Khangaon, Oomraotee, and Hingunghat,—places which, in old days, were at a distance to be measured by months, not miles,

—are now within a day, or a day and a half's journey of Bombay ; and the ryot who brings in his cart-load of cotton, and the merchant who has come up by the railway to purchase, meet face to face in the cotton market, and there transact business with one another direct.

167. And the great benefit of the new state of matters is this: if I have sufficiently explained myself, it will be seen that, as the trade was before managed, the cultivator had no object in delivering clean carefully-tended cotton, and the dealer had many temptations to mix different growths together, and to pass off on the purchasers in Bombay, who were entirely dependent on him for supplies, a class of cotton very inferior to what was to be got in the cotton growing districts. The present state of the trade affords to the ryot that inducement to grow really good cotton, which, to the cause of improved cotton cultivation, is more important and more effective than the labour of Government officers, however devotedly and intelligently given; and at the same time the position of the agent or purchaser, who acts in the districts for the Bombay merchants, and who takes the place of the dealer, is such, that it is clearly to his interest to buy for his constituents the very

Great advantages therefrom. cream of the cotton crop and to take every precaution to prevent the cotton sent down to

Bombay being mixed or tampered with. The cultivators now grow good cotton; and that cotton is sent Home untainted; and the changes of the last few years have secured for our cotton what was most urgently required in order to give it a fair chance, and the results are already beginning to show themselves in the satisfactory character our produce now holds.

168. The manner of doing business in the large markets in the Berars, a process of which a short description may be interesting, is something after this fashion. During the night long strings

Present manner of doing business.

of carts loaded with cotton pour into the market, and are marshalled by the Darogah or Native official in charge, and his assistants, into long lines or streets, the small quantity of cotton brought in on bullocks being piled in a compartment set apart for it in the centre of the yard. In Khangaon the number of carts will, in the season, run as high as 1,500, representing upwards of 1,000 kandies or 2,000 full-pressed bales of cotton. Soon after daybreak the market is alive with purchasers, their attendants, clerks, brokers, and others, and business commences. During the night telegrams giving orders to purchase a certain quantity of cotton, and quoting the last advices from England, have most probably been received, and purchasers go round the carts examining the cotton and making their offers. The price at which the first transaction is made is generally the rate of the day, and the rate is soon buzzed round the market, and most purchases are made at about that rate; though it is, of course, liable to change by the receipt of later advices. The merchant from Bombay and the Koonbee meet face to face in the market. A slit is cut in the gunny covering of the bag in which the cotton is packed, and the merchant, inserting his arm into the heart of the cotton, brings out the sample. According to the *quality* of that sample, the merchant now makes his offer,—and herein lies the advantage of the new system. The ryot sees that the price which his cotton brings him depends on its *quality*, and he has thus substantial inducement to bestow care on the cultivation and picking of the crop. The agent, on the other hand, must be most careful in selecting his cotton, or he will not please his constituents in Bombay; and the presence of several agents entails competition, and keeps all up to the mark. By the time that the number of bags of cotton required have been selected (and as six dokras or bags must be bought for every kandy required, the process is a lengthy one), breakfast will be ready, and letters for the Bombay mail which, in the cotton season leaves Khangaon at 2 o'clock, will have to be written. This done, it will be time to weigh the cotton selected in the morning. The Koonbees, who have, in the interval, taken their food, bring the cotton to the agent's *thuk* or weighing yard, and the hardest part of the day's work now commences. Each bag, before it is passed on to the scales, undergoes a second inspection, and, if it be found wanting in quality, or if any mixture can be detected, it is immediately rejected and rolled on one side, whilst the cotton that passes muster goes to the scales. When the whole lot has been weighed, the Koonbee gets a memorandum showing the gross weight of the cotton, the rate per *bhoja* at which the cotton has been purchased, and the amount payable; and this cheque, when presented, is paid by the cashier, who sits with the bright new rupees before him in a corner.

of the shed. During the hot weather the process of selecting and weighing the cotton in the heat and glare is most trying, as I myself from experience can testify. The cotton weighed and selected is then packed in half-pressed or full-pressed bales; and in the evening the process of weighing the bales containing cotton purchased the day before, which has been passing through the presses whilst to-day's purchases were being examined, has to be performed. The weight of each bale and its number has then to be entered in the invoice, and the cotton is loaded on carts, and carried to the nearest Railway Station from which it is now forwarded without delay to Bombay. Last year one of the most distracting and troublesome part of an up-country agent's duties, was to ride into the Railway Stations, and to cajole and beg, and threaten, so as to get the cotton there detained sent off as soon as possible. Luckily, this year, thanks to the improved arrangements of the Great Indian Peninsula Railway Company, the up-country agents have been spared this onerous and unsatisfactory duty.

169. Thus, then, the interest of the grower, the up-country agent, and the merchants in Bombay, all now are concentrated in producing and procuring the best cotton; and the full-presses and the railway being at our service close to all our markets, it is not to be wondered at that a class of cotton reaches England different from the inferior stuff which so many interested causes helped in old days to palm off on the market.

Those who now see the Indian cotton that Our cotton now sent flows into Liverpool say that "Indian cotton Home untainted. has improved."

In the districts at the source the cotton has perhaps undergone some slight improvement. But the improvement is chiefly to be attributed to the fact, that the trade has now been turned into a new channel which is more smooth and pure than that in which it had so long flowed, and that the cotton which now reaches the Home market bears a much closer resemblance to the true cotton as drawn at the fountain-head, than the foul mixture of many streams which in old days poured into the Bombay market.

170. The paragraphs in which allusion has been made to the progress in pressing cotton up-country, will have shown that we now have several Companies established in these Provinces, which afford great aid in bringing about the valuable results noticed above. Jubbulpore and Hingunghat have for some time now enjoyed the advantage of the presence of European merchants. But the number of

European firms established in these Provinces. have considerably increased during the last year; and Messrs. Warwick and Co. intend, I believe, to set up a ginning factory at Hingunghat. The Mofussil Ginning and Pressing Company have now

been at work for some time in the Berars, and their excellently managed establishments have done much to keep up the credit of the cotton sent down from this part of India. The factories of the Deccan Company at Khangaon and Budnaira, which were affected by the misfortunes that overtook Bombay in 1865, long remained uncompleted; but during 1868 they have been opened and worked. The large factories at the cotton markets are indeed one of the most interesting features of the Berars, and attracted the particular attention of Sir Richard Temple on his tour through the Provinces. At the markets of Hingunghat, Deolee, Arvee, Oomraotee, Akote, Sheogaum, and Khangaon, we now have European firms established for the purchase of cotton, and to the gentlemen settled there, who have got on very well with, and are much liked by, the cultivators, is *

Assistance given by them to the cause of improved cotton cultivation.

the great improvement that has recently taken place in the cotton, and the cotton trade of these Provinces, to a great extent due.

My duties have, of course, brought me into very close communication with these gentlemen, and I have always tried, so far as I legitimately could, to consult and protect their interests. If I have succeeded in any degree in this object, I am confident that Government will consider that I have performed no unimportant part of my duty.

171. In closing this report, I am conscious that I have been unable to point to any striking results, or to show that very much has been done by me during the time I have held my present appointment. But I hope it may be remembered, that much of my time has been employed in learning the duties of my office, which were of a novel and exceptional character, and in laying a foundation of knowledge and experience, the value of which will be more and more felt as the work progresses and grows heavier. And here, as in all undertakings, these foundations, often the most anxious and difficult part of the work, make the least show. Still, speaking literally as well as metaphorically, the seed of improvement has, I believe, been sown. I am confident that Government will not desire to force its growth, and that the fruits of successful results, which to be of real value, must be permitted to ripen leisurely and gradually, will not be required of me before due season.

I have the honour to be,

Sir,

Your most obedient Servant,

HARRY RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars.
Camp, Khangaon, 1st July 1868.

APPENDIX A.

MEMORANDUM.

As several gentlemen, who are desirous of making experiments in Bengal this season with Hingunghat cotton seed, have requested me to give them information on certain points regarding the locality and soil in which the cotton thrives, and the manner of its cultivation, I have drawn up the following brief note which, I hope, may be of some use to those who are inclined to assist in extending the cultivation of this superior class of indigenous cotton.

Hingunghat cotton is grown in the Wurdah district of the Central Provinces, in the neighbourhood of the town of Hingunghat—an important cotton market—from which place the cotton takes its name.

The cotton is celebrated for its cleanness (freedom from leaf and dirt), brightness of colour, length, strength, evenness, and silkiness of staple. In all these points—all of which are regarded as of great importance by the spinner—the Hingunghat variety is superior to most of the Indian cottons. As compared with the cotton of Bengal, that grown in the Hingunghat country, besides being superior in all the respects noticed above, is particularly glossy and soft, whilst Bengal cotton is woolly and dull in appearance, and rough and harsh to the touch.

There can be little doubt that the superior quality of this cotton is to be attributed to the physical advantages of the tract in which it is grown. The Wurdah district is situated on the northern extremity of the great Decean sheet of trap, which extends from Mudnoor—far south in the territory of His Highness the Nizam—to the low hills which form the northern boundary of the Wurdah district. The height of the cultivated plateau is not more than 900 feet above the sea level. The soil is of the well known “*regur*” or black cotton soil, composed of the debris of the trap rock, the basis of the geological formation of the district. The following description and scientific analysis of this soil is extracted from Ansted’s Geology, page 343:—

“Its colour is bluish black, greenish or dark grey. It forms into a paste with water, and gives a clayey odour. It absorbs moisture rapidly, and parts with it in dry and hot weather. Its thickness varies from 3 to about 20 feet. It is cultivated very easily, yielding a rotation of crops, consisting of cotton and two kinds of corn. It rarely requires to be left fallow, and demands but little husbandry, although

for the last 2,000 years this soil has continued in cultivation without manure, retaining the utmost fertility."

The following is an analysis of the "*regur*" :—

Silica	48.20*
Alumina	20.30
Carbonate of Lime	16.00
Carbonate of Magnesia	10.20
Oxide of Iron	1.00
Water and Organic matter	4.30
<hr/>	
	100.00*

In the Hingunghat country this soil varies in depth from 2 to 15 feet, but the average depth of the best cotton-growing lands does not exceed 6 or 8 feet. Beneath this rich coating, kunker, a sort of hard gravel, is found, and below this again is the trap rock already noticed.

The country slopes gradually southward towards the river Wurdah which forms the southern boundary of the tract, and as the village lands, following the upheavings of the volcanic crust beneath lie in huge waves of soil, the direction of which is at right angles to the course of the river, the drainage is excellent, the rain water being carried off by streams flowing down between the troughs of these waves and discharging themselves into the Wurdah. The rain-fall in the tract is moderate, not exceeding on an average 39 inches. Last season the monsoon was unusually heavy, and very much harm was in consequence caused to the cotton crops.

It will be seen from the above that the tract in which the cotton is grown possesses two great physical advantages—a good soil, and excellent drainage. And of the two the drainage is if anything of even greater importance than the soil. For although due provision must be made for the tap-root of the plant, which strikes straight down into the ground, it is not necessary that the soil should be more than from 4 to 5 feet deep. Cotton is of course often sown in soil the depth of which is not one quarter of the above, but the poorness of the soil tells upon the plant and its produce. On the other hand cotton is apt to be clogged and smothered in the very deep rich soil, and this is one of the reasons, I believe, for the plant not being very extensively cultivated in the Nerbudda valley, the lands of which are much better adapted for wheat, which is grown in, and exported in large quantities from the Nerbudda districts. In the Wurdah district the deepest soil is to be found in the Mandgaon pergunnah, and here too wheat takes the place of cotton, which the people say thrives better in a lighter soil.

In selecting the fields for the experimental culture of Hingunghat cotton, I would recommend then that particular attention be paid to the

drainage of the ground. At the same time a fair average soil should be allotted to the crop.

As regards the cultivation, I hardly know the seasons in which cotton is planted in the Bengal province, or the manner in which the crop is now treated. I am unable, therefore, to offer any suggestions regarding improvements to be made in the present mode of cultivation there. I will, however, mention briefly the method in force in the Hingunghat country, and as the system is sufficiently successful, it would perhaps be well if the gentlemen, who are good enough to make experiments with the Hingunghat seed, were to follow that system, unless their experience suggests that it is not adapted to the circumstances of the country. Where opportunity offers, it would be well to cultivate one field according to the Hingunghat plan, and to treat another in the manner peculiar to the district in which the experiment is made.

In the Hingunghat country the cotton is sown during the first break in the weather following the setting-in of the rains.* The field selected is generally one that has borne a grain crop the previous year, for of course, cotton should never be sown two seasons running in the same ground. Previous to the commencement of the monsoon the ground is prepared for the crop by being ploughed or rather scraped by the "bukhur," a rough instrument which is peculiar to this part of the country, and which takes the place of the plough of Eastern India. The *bukhur* is passed over the field five or six times according to circumstances, and has the effect of scraping up and loosening the soil, and preparing it to drink in the rain, which, instead of running off the surface, as on the hard untilled ground, sinks through the loose earth, moistening and softening it so as to admit of the working of the drill-plough, and the commencement of sowing operations. In this part of India, cotton is never sown broad-cast, but always in rows, sometimes with the drill-plough, or, when the soil is light, with the aid of the *bukhur* and a bamboo tube down which the seed is poured, and which serves the part of the feeder in the drill-plough. The seed from the circumstance of much of the cotton fibre adhering to it, often clogs the feeder, and to obviate this, the cultivators in this part of the country generally roll the seed in cow-dung or dry earth, which process helps it to run more freely down the tube. I mention this, as the Hingunghat seed may perhaps, without the use of this precaution, give some trouble to the sowers in Bengal. In this part of the country the seed is sown very close, too close together, and the rows are, as a rule, not far enough apart. As however the plant is small, and does not branch out, it admits of being more closely packed

* In some parts of the Chandah district, and on the Godavery, a small crop is raised by sowing the cotton after the rains. It ripens in April.

than many other varieties, but I would recommend that the rows be not less than $2\frac{1}{2}$ to 3 feet apart. Soon after the plant appears above ground, the soil between the rows, which the action of the rain has hardened and caked, is loosened with a sort of hoe, a small edition of the *bukhur* which fits in between the lines. The young plant is thus helped to push its way above ground, and is now left pretty well to itself until the weeds begin to appear. The weeds should then be carefully removed, the weeding being done by hand, and this process should be repeated sufficiently often to keep the field perfectly free from grass.

As the plants progress, care should be taken to thin the field in places where the plants are found to have been sown too close together. In foreign soil the Hingunghat plant has sometimes been found to shoot up very rapidly, and to show a tendency to run to wood. In its own country it is a short, sturdy little plant, small, seldom more than 3 feet in height, but yielding a good quantity of cotton (the great point), and when it appears to be outgrowing its strength it would be well to "top it," by cutting off a few inches from the top of the plant. And too much care cannot be bestowed in following the plan of "rogueing" the crop, as advocated by Major Trevor Clarke, and thereby ensuring the purity and high quality of the plant. In the Hingunghat country this valuable process has only recently been introduced, and although the seed sent to Bengal and other parts of India has been selected from the best lands and with considerable care, I cannot too strongly urge the importance of rogueing the crop and selecting the seed as recommended in Major Trevor Clarke's pamphlet. Spare copies of the pamphlet will be forwarded, but for facility of reference an extract from this valuable paper is here annexed:—

" But I must now turn your attention to a fresh subject, already, however, alluded to in my former letters, namely, the use of pure seed, to be effected by the rigid isolation of sorts. Next to a constant supply from any indicated source, the manufacturer requires a *constant quality of staple*. From accounts I have received from credible eye-witnesses, the mixture of sorts in a cotton-field, especially in the West Indies, is inconceivable, the crop in some instances looking like a flower-garden with different sorts, sizes, and colours. In one case my informant described the not unfrequent appearance of a red blossomed sort, evidently the Indian G. Arboreum, in his fields.

" This is the work of the native labourer, who is either incapable or unwilling to see the difference between right and wrong, at any rate where his own interests are not concerned. His delight seems to be in reversing, confusing, or nullifying especial orders the moment the master's eye is off, and the mixture of seed is generally his preliminary operation. In my own experience I rarely receive unmixed samples,

and wrongly named sorts are continually sent home, although probably in good faith as far as concerns the sender.

"The one and only remedy for this will be found in English skill, science, and energy strongly exerted in this one direction. Experimental farms, at the expense of, or encouraged by, Government, are nothing new; for a century or two these have been carried on in spite of the perversity of man as well as that of the elements, and have borne their fruit. My modification, however, of the system, would be this: *Let such establishments be entirely devoted to seed farming*, the sole effort being restricted to the production of pure seed in the country, where it is destined to be grown in future. In this country no grower of seed, either for agricultural or gardening purposes, would ~~not~~ obtain a sale for his produce were he to supply his customers with mixed or inferior seeds. In the establishments of such persons the master himself goes through his crops several times a year for the purpose of destroying every plant which proves inferior, or untrue to sort. This weeding process is technically and expressively called 'rogueing' the crop, and is absolutely necessary to ensure purity and high quality. At the same time improvement by special selection is carried on; single plants showing high qualities are picked out for propagation, and the produce of these submitted even more rigidly to the same treatment."*

If these instructions be carefully followed, and the produce of the best plants be carefully selected on the pedigree system, and seed gardens be established and sown with the selected produce, I have little doubt that the introduction of the Hingunghat cotton seed into Bengal will do much good.

The cotton plant begins to flower in September, during the following month the pods form, and in November the capsules burst and the cotton is ready to be picked. Care should be taken to pick the cotton whilst the plant is yet young and fresh, and before the leaves wither and die and become mixed up with the cotton. Much of the cotton in this part of India is damaged, and suffers in price from the careless manner in which this process is performed.

The ginning, or the separation of the cotton from the seed, is performed here by the common Native "Churka," or "Recha" as it is more properly called. Where Platt's Macarthy Gins are at hand, I would recommend that they be used.

It will be noticed that I have not recommended the use of manure. Its use should depend on the circumstances of the soil and the expe-

* Major Trevor Clarke's "Improvement of Cotton by Purity of Seed," page 3. Published by the Cotton Supply Association, September 1866.

rience of the cultivators in that part of India where the experiment is made. What suits Hingunghat land may not be found to answer in Lower Bengal, but I may mention that here the cultivators do not generally manure their cotton-fields. They hold that if the rain-fall is unusually heavy, manure may be found to answer, but that in their country, where the fall does not exceed 39 inches, manure is apt to excite the plant and drive it to wood, resulting in very fine cotton plants with hardly any cotton! Experiments are being made to test the correctness of this theory. In a new country, I should be glad to see as many experiments as possible tried, and it would be well not only to sow the seed in every sort of soil available, but also to try the effect of the cultivation with and without manure.

I would, however, advise all who undertake experiments with this seed to sow not less than 5 or 6 acres at a time. Any experiment conducted on a smaller scale than this will hardly be satisfactory. On an average from 8 to 10 lbs. of cotton seed are required for an acre, and thus from 50 to 60 lbs. of seed will suffice for each trial.

Where convenient I should be glad if not less than 12 lbs. of *Kupas* (uncleaned cotton) from each field could be forwarded to my address at Nagpore, with a statement in the accompanying form showing the result of the experiment.

I need hardly say that I shall be at all times exceedingly glad to answer any questions and to render any assistance in my power to all who take an interest in the subject.

HARRY RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars,
Camp, Oomraotee, 18th March 1869.

Results of Experiments with Hingunghat Cotton Seed in

Size of Field and quantity of Seed sown.	Description of Soil.	Yield of <i>Kupas</i> (Cotton in the seed) in lbs.	Yield of cleaned Cotton in lbs.	Remarks.
				Here it would be convenient if a short description of locality could be entered, with particulars of the treatment the crop received, of the season, &c., &c.

APPENDIX B.

जाहीरनामा.

व्यापारी लोक जे आपला कापूस सरकारी यार्डीत रेलवेतून जाण्या करितां साठवून ठेवितात त्यांस असी समज दिली जाते की हीं यार्ड व्यापारी लोकांस त्यांचा कापूस रेलवेतून रवाना करण्याचे कामात हरएक अडवणी येत होत्या त्या न याव्यात आणि देशांतील व्यापार वाढावा म्हणोन हीं यार्ड स्थापन केली आहेत.

३. हाळीं काटन कमिशनर साहेब वाहादूर यांस असें समजून आलें आहे की, रेलवे कंपनीनी कापूस रवाना करण्याकरिता फार चांगला बंदोबस्त केला आहे. व्यापारी लोक आपला कापूस ज्या वेळी रेलवे कडील लोक रवाना करण्यास तयार आहेत त्या वेळी माल रवाना न करितां सरकारी यार्डीत वरेच दिवस साठवून ठेवितात. त्यापासून रेलवे कंपनीस व इतरांस किंवा त्रास आहे हा उघ्रड दिसोन येतो.

४. व्यापारी लोकांनी असें समजावें कीं, हीं यार्ड त्यांचा माल साठवून ठेवण्या करितां केलीं आहेत असें नाहीं. फक्त रेलवे कंपनीकडे कापूस नेण्याच्या गाड्या शिलक नसल्या कारणाने शिलक राहाणारा कापूस सरकारी यार्डीत साठवून ठेवावा आणि असा साठवून ठेवल्या कापसावर अर्धा आणा की वेतली जाईल; ती यार्डीचे बंदोबस्ताकडे लावण्यांत येईल.

५. जेव्हां व्यापारी यांस स्टेशनमास्तर आणि सरकारी कारकून कापूस भरण्यास गाड्या आहेत, आणि कापूस तुम्ही भरा असें सांगेल, तेव्हां व्यापारी योग्य सबव नसतां यार्डीत माल साठवून ठेवील तर दरेक गठयास दर दिवस ५ रुपये प्रमाणे भाडे घेतलें जाईल.

६. व्यापारी लोक सरकारी यार्डीत कापूस ठेवून कापूस विकतात तर त्यांणी आपला कापूस तेथें विकूऱ्य नये; कापूस विकण्याचा जो बाजार आहे तेथें घेऊन जाऊन विकावा.

७. हा जाहीरनामा सरकारी यार्डीत व स्टेशनावर लावला जाईल. आणि यार्डीचे कारकून याणे जे व्यापारी लोक आहेत त्यांस या जाहीरनाम्याचा अर्थ समजून सांगावा.

८. जरकरितां व्यापारी या जाहीरनाम्या प्रमाणे न वागतील तर त्यांस सरकारी अमलदाराने जाहीरात दिली आणि ती लोक अमान्य करितात त्यांस ज्या शिक्षा कायद्यांत सांगितल्या आहेत त्या शिक्षेस व्यापारी पात्र होतील. तारीख ४ माहे मार्च सम १८६८ इ०.

APPENDIX C.**NOTICE.**

For the convenience of Merchants and others whose Cotton may be delayed at the Railway Stations, the Government Ground adjoining the Station is made available for the stacking of Cotton that may be thus detained.

On all Cotton thus stacked a Fee of $\frac{1}{4}$ anna per Dokra will be levied, as rent for the space occupied ; the Fund thus raised being devoted to defraying the expenses of maintaining order and system in the Yards.

The Cotton deposited in these Yards will remain in the custody and at the risk of the owners, who must make proper arrangements for its safe custody, and who will be subject to such rules as may, from time to time, be framed for the management of the Yards.

All parties are particularly requested to take notice, that Government do not hold themselves liable for any damage to, or loss of Cotton deposited on this Ground, whether the same be occasioned by fire, accident, negligence, or from any other cause whatever.

HARRY RIVETT-CARNAC,

Cotton Commissioner for the Central Provinces and the Berars.

January 1867.

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